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ABSTRACT

This handbook can be used by anyone with an interest in mapmaking. The step-by-step guide shows how to draw, plan, and color a one-of-a-kind world map. There is a list of materials, supplies, worksheets, and a trouble-shooting appendix for special situations. The guide also provides a variety of enrichment activities to promote continued involvement with the world map. The activities stress cooperative problem-solving for participants of all ages. There are three parts in the guide: (1) "How to Make Your World Map"; (2) "How to Use Your World Map"; and (3) "Resources for Making Your World Map." An appendix containing directional material and a bibliography is also included. (EH)

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WorldWise SCHOOLS

The World Map Project

Handbook

SO 025928

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The World Map Project

Peace Corps
Office of World Wise Schools

Based on *The World Map Project Manual* by Barbara Jo White

Expanded by: Elise Sprunt Sheffield
Returned Peace Corps Volunteer, Lesotho (1985-87)

Edited by: Mary Koller
Margaret Legowski

Layout: Mary Koller

Published 1995

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World Wise Schools
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Washington, DC 20526

This map uses the Robinson Projection.

This study guide contains materials written by educators and others that represent their individual views. These views are not official opinions of the United States government or of Peace Corps.

WWS 23T-95

About this Handbook

The World Map Project brings people together to create large, colorful maps of the world. Initiated by a Peace Corps Volunteer, this project promotes geography literacy in an engaging way while also building a sense of community among mapmakers. It is one example of how Volunteers meet the goals of their Peace Corps service.

Since 1988, enthusiastic Volunteers have carried this highly acclaimed program to over 40 countries around the world. Returned Volunteers have spread the idea across the U.S. as well. Because of the wide appeal of the activity, this guide (a revision of an earlier manual) has been written for many different groups. U.S. teachers, Peace Corps Volunteers, Returned Peace Corps Volunteers, scout leaders, youth workers, and others.

You do not need to be a skilled cartographer: this guide gives you all the information you need to create your own one-of-a-kind world map. Inside you'll find step-by-step instructions on how to plan, draw, and color your map. This handbook also lists materials, supplies worksheets, and even includes a trouble-shooting appendix for special situations.

The guide also provides a variety of enrichment activities to promote your group's continued involvement with the world map. These activities stress cooperative problem-solving and are for participants of all ages. You do not need to be a classroom teacher to introduce them successfully. All activity plans list materials, provide instructions, and, if needed, supply background information. If you are part of the World Wise School program, you'll also find suggestions for using the map to enhance your Peace Corps connection.

Whatever your group, wherever you are, World Wise Schools welcomes your participation in this exciting worldwide project. As always, we also invite your comments and suggestions; your ideas are important to us. Happy mapmaking!

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The World Map Project: 10 Questions

How did the World Map Project get started?
Back in 1988, Peace Corps Volunteer Barbara Jo White was waiting for a bus in the Dominican Republic when she got an idea. Getting kids interested in geography was tough without materials, so why not paint a map of the world straight on the wall? With the approval of school authorities, Barbara Jo and her students set to work. From there the project blossomed. Soon the brightly colored maps adorned the walls of over a hundred schools in the Dominican Republic.

Within two years, Peace Corps Volunteers had introduced the Project to communities around the world. Back home, Returned Volunteer groups adapted Barbara Jo's original manual to share the idea with U.S. teachers. Interest in the project kept growing. Former President Jimmy Carter publicly commended it. Corporations lent support too, including IBM, which has promoted the project in all its "adopt-a-school" programs in Atlanta.

Today the World Map Project has spread to hundreds of cities, towns, and villages across the globe. Many of the hand-painted maps brighten the walls of schools and community buildings. Others hang in classrooms, gyms, and cafeterias. At least one canvas map roams the U.S. on tour, courtesy of the postal service. Perhaps one day soon we'll find these beautiful maps in nursing homes, libraries, and other public spots--not to mention the playground!

Why the big interest in the World Map Project?
First, the maps are fun to make. They instill pride in accomplishment and boost confidence. They encourage cooperative problem-solving and build community. Just as important, they spark excitement in learning about the world everybody shares.

Who can do this Project?
The Project is for everyone. Mapmakers of all ages and abilities have had success: deaf children in Ghana, school students in Thailand, youth groups in Tunisia, 4-H'ers in North Carolina, Returned Volunteers in Oregon, at-risk kids in Atlanta. There's room for your group, too.

How big can we make our map?
The world map is adapted with permission from one created by the National Geographic Society using the Robinson Projection. The length of this map is twice its height. This means your map can be any size (metric or U.S. standard) as long as it retains this 2:1 ratio of length to height. Most groups have made maps at least 6 ft. x 12 ft. Mapmakers in Atlanta created one measuring 15 ft., 2 in. x 30 ft., 4 in. There are rumors of an even larger one in Kenya. . .

Help! I can't draw! How can we make such a big map?
This guidebook gives you two ways to make your map, and you don't have to be a Leonardo for either one. The Grid Method lets you transfer information from pre-gridded map sheets onto just about any surface. To do so, you first draw a big grid on your background surface. Then you copy sections of the smaller map onto your larger grid one square at a time.

Almost everyone has drawn the world maps using the Grid Method, but you might want to make your world map using an overhead projector and a single world map transparency. The Projection Method lets you trace a projected map image directly onto a wall without making a grid.

What should we use for our background surface?
Walls are very popular: plaster, dry wall, cinder block, wood, or even brick. You can try floors and playground blacktops too! Some mapmakers have opted for non-fixed surfaces like sheets of pre-cut plywood, particle board, cardboard, or heavy plastic. (Draw your map on a single piece or try a series of panels.) Still others have created their maps on canvas, cotton sheets, even pieces of heavy paper taped together. (Businesses that sell vinyl flooring may be able to donate very large pieces of heavy paper that come rolled with the flooring.)

Note: You may want to work with pre-cut surfaces whose corners are already squared (e.g., sheets of plywood, pre-cut canvas, etc.) as these will be the easiest to construct your grid on. If your surface isn't already square, don't worry! This guide tells you how to work with these situations too.

How should we color our map?
Most mapmakers have painted their maps with acrylic or latex (water-based) house paint. (For a 6 ft. x 12 ft. map, all you need is about 4 ounces of 8 paint colors, plus a quart or more of ocean blue, a white/blue mix.) Depending on your background surface (and stamina), you can also use colored markers, colored pencils, or crayons. Some schoolchildren in Georgia have even made beautiful maps from colored tissue paper strips.

As for coloring your countries, use the color scheme suggested in this guide, or make up your own. If you like the challenge of designing your own color scheme, you will need at least four colors; the more colors you have, the easier it is. Remember, light colors will show map labels easier than dark ones. In assigning colors to various nations, keep in mind that countries and their territories are the same color. Thus, if England is green, so are the Bermuda Islands and the Falkland Islands. Therefore, the U.S. can't be green, or the Bermuda Islands would appear to be territories of the U.S.

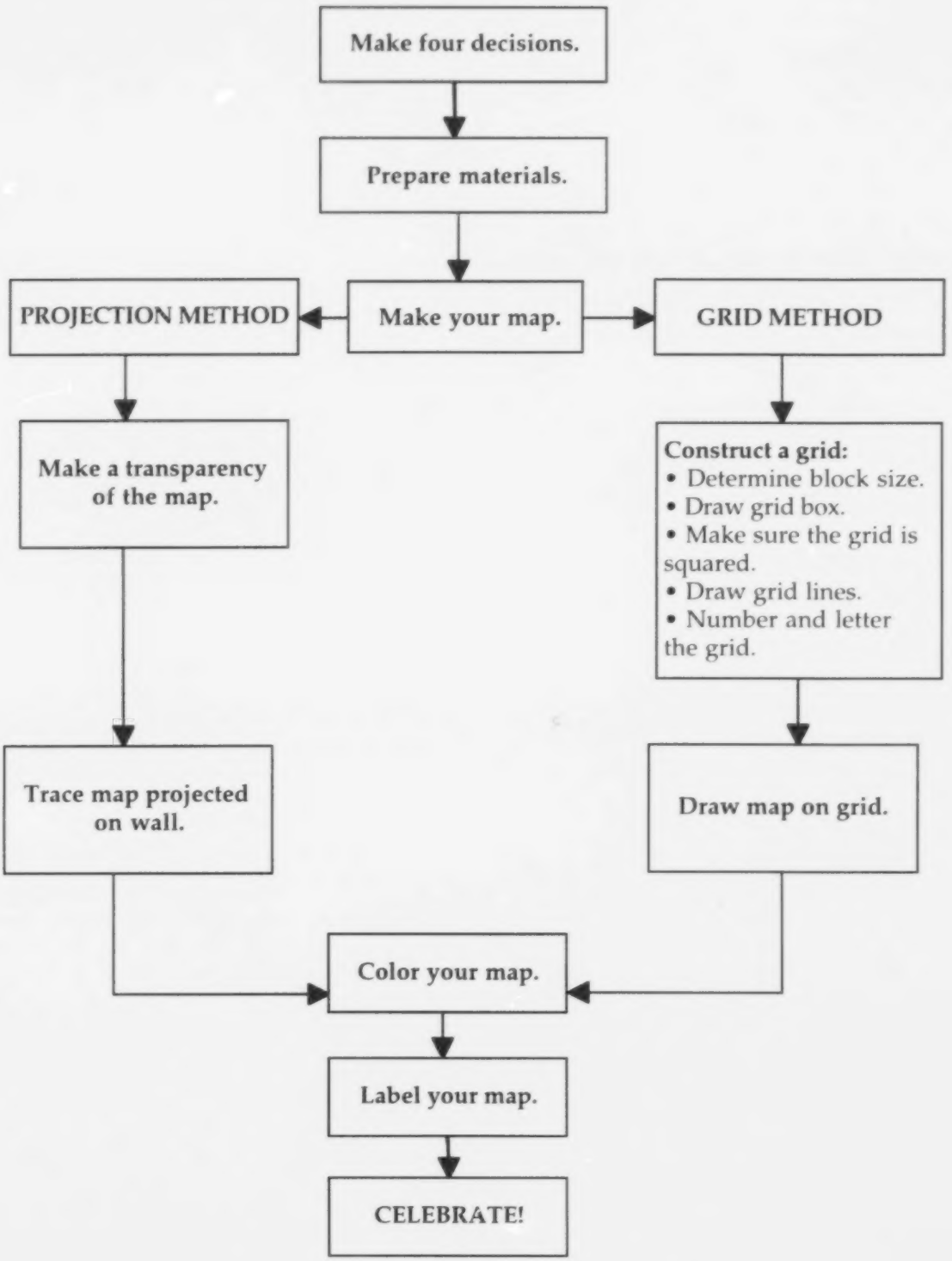
How long will it take us to make our map?
It's best to take your time; this project is as much about process as product. Some groups have created their map in one intensive weekend. For others, the project evolves over several months. Each map is unique. Each has its own history. Relax: the learning is in the journey.

How much will it cost us?
Not much. This is a very low-cost project. If you make a wall map, all you need is pencils, paint, and brushes. Expect to spend a bit more to purchase background surfaces like plywood, paper, or canvas. Involve your community when gathering your resources--remember businesses, the PTA, civic groups, friends, and interested observers. You can also turn your project into a fund-raiser--take pledges or sell country tickets.

Can we improvise or make the map differently than the method suggested?
Sure. Use your imagination. Try unusual materials. Depict physical features instead of countries. Create maps of your region. You can even apply your draw-by-grid skills to other projects like making posters and murals!

Part I: How to Make Your World Map

Project Overview



Getting Started

Make Four Decisions:

1. Which mapmaking method will you use--grid or projection? (See p. 5)
2. Approximately what size will your map be? Any border? (See p. 5)
3. What background surface will you use? (See p. 6)
4. How will you color your map? (See p. 6)

Prepare Your Materials

Prepare Your Map Section Sheets (p. 42-55).

Each gridded sheet represents a section of the world map. If you make your world map using the Grid Method, you'll need these sheets when drawing, coloring, and labeling. In preparation:

- Photocopy each section sheet (p. 42-55) to make single-sided copies.

- Color the countries on your photocopied section sheets according to your color scheme (p. 56-62). It's usually easier to draw from colored map sections. Colored sheets also eliminate endless "What-color-do-I-paint-this-country?" questions later on. Remind your mapmakers to color lightly over written information. Double-check the results.

- Protect the section sheets. Plastic-covered pages will last through many mapmakings and paint spills. Laminate them or slip them into plastic folders and tape shut.

Prepare Your Background Surface

All surfaces

You'll want a background surface that is as clean, smooth, and as light-colored as possible. If you'll be painting your map, make sure your surface is non-porous. Prime it, if necessary, and let it dry. Paint the entire map area ocean blue, two coats if needed. With a blue background, you won't have to carefully paint the ocean around the continents and islands later on. Save some ocean blue paint for touch-ups. (General recipe: ocean blue = 1/2 quart of white + 3-5 teaspoonfuls of blue.)

Canvas

Use pre-coated artist-type canvas if possible. If your canvas is not pre-coated, you'll need to prime it with whatever product an art supply store recommends. Primer may seep through your canvas, so protect your floor. Also, keep in mind that linen canvas may shrink after getting wet.

Think about how you'll display your canvas once it's painted. Though not necessary, you may want to consider stretching your canvas on a frame before priming and/or painting. Doing so will smooth and "square" the surface as well as provide an attractive way to display the completed map. After constructing your grid, take the canvas from the frame if you will be working on the floor. Re-attach at the end of the project.

Another option is to lash the canvas to PVC plastic tubing, or sew a "pocket" the length of the canvas through which you can later insert a strong rod.

Paper and Cardboard

You can prime paper for an improved painting surface (see Canvas, above).

Floors and Playgrounds

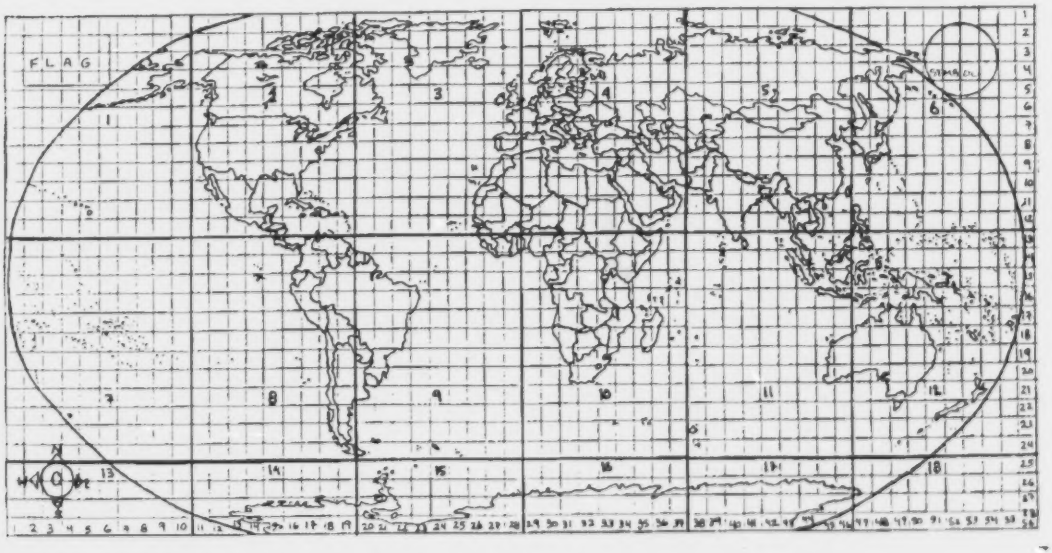
Sweep and hose down your surface so that it is clean. Depending on the size of your map, you may not want to paint the entire area ocean blue.

The Grid Method

Overview:
The goal is to create an accurate hand-drawn map of the world. To do so, you first draw a big grid on your background surface. Then you transfer information block-by-block from map section sheets (p. 42-55) onto this proportionately larger grid. Although it involves a number of steps, actually making and using the grid is quite simple. Schoolchildren all over the world have succeeded, and you can too.

Materials:
map section sheets, p. 42-55
yardsticks/meter sticks
measuring tape (optional)
long straightedge (optional)
carpenter's square, protractor, or even a sheet of (squared) paper from this guide
pencils
pencil sharpeners
erasers
masking tape

Figure 1: The World Map and Grid



Setting Up Your Grid

A grid of 1,568 blocks (28 rows x 56 rows) already overlays your map section sheets. Your job is to make a similar (though larger) grid on your background surface. The following steps tell you how to size, center, and square your grid box; they also tell you how to draw all the grid lines. Many mapmakers find constructing the grid the most time-consuming aspect of the whole project; after making all those straight lines, actually drawing the map goes quickly.

Determine the Exact Size of Your Grid Box

Your map will be the same size as your grid box. The exact size of your grid box depends upon how large you want to make each of its 1,568 grid blocks: the larger the blocks, the larger your grid. To figure out the dimensions of your grid box:

1. Decide how big you want each grid block to be.

block size = proposed length (in/cm) of your map divided by 56
= proposed height (in/cm) of your map divided by 28

Note: Blocks are square, so their length should equal height.
Any block size is fine, but blocks at least 2 inches (5 cm) square are best.

2. Round your block size to the nearest half-inch (or cm). This will make setting up the grid much easier.

3. Re-calculate your map's final height by multiplying the rounded block size by 28. Re-calculate its final length by multiplying block size by 56.

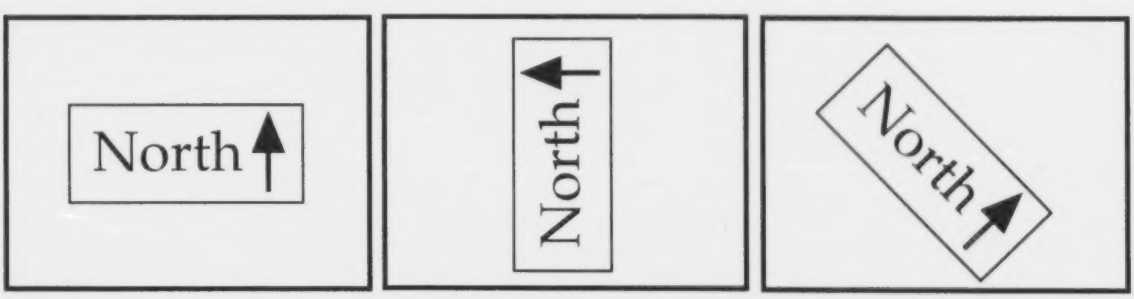
4. Make sure your map's grid box will still fit within your background area.

Example: Proposed Map Size = 4 meters by 8 meters (400 cm x 800 cm)

Height of Block	= 400 cm divided by 28
	= 14.2 cm (round to 14 cm)
Length of Block	= 800 cm divided by 56
	= 14.2 cm (round to 14 cm)
Block size	= 14 cm x 14 cm (blocks are square: height = length)
Final Map Height	= 14 cm x 28
	= 392 cm (3.92 m)
Final Map Length	= 14 cm x 56
	= 784 cm (7.84 m)

For maps painted on floors or playgrounds:
Before finding your grid box size, why not first orient your world map to true north? Use a magnetic compass to find out how your map should sit on its background surface. Most outdoor slabs will be oriented on a north/south or east/west axis. Some maps may rest at an odd angle to their background surface, but at least they'll be oriented correctly.

Figures 2, 3, 4: Map Orientations



Draw Your Grid Box

The four sides of your grid box make a rectangle whose corners form right angles (90 degrees). Without squared corners, your whole grid system will be skewed, causing distortions when you draw the map. So it's important to construct the four sides of your grid box with care.

It's easy to square and center your grid box if your background surface is itself already squared. If you're working with an unsquared background (as most mapmakers have), you'll need to go through a few extra steps:

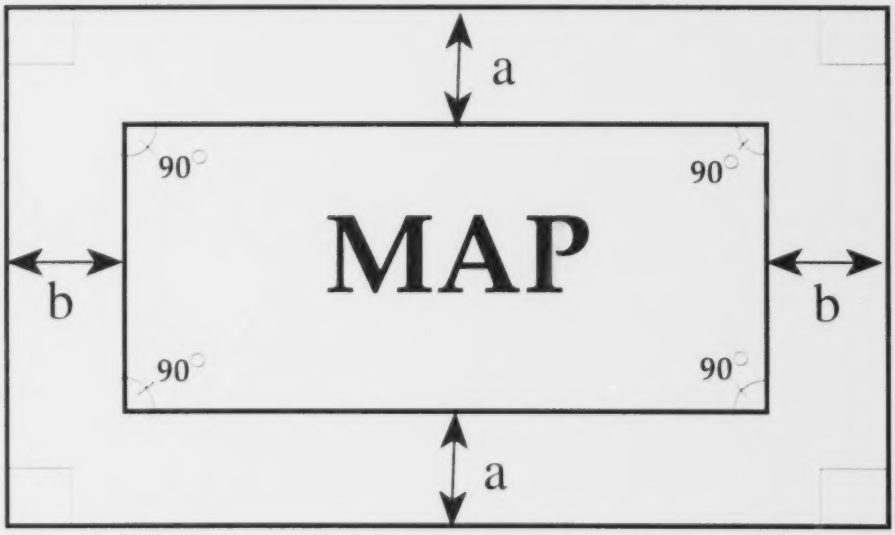
- For an unsquared area of wall or an irregular piece of hung canvas/paper, see p. 67.
- For an unsquared area of floor, playground, or an irregular piece of flat canvas/paper, see p. 69.

For all pre-squared surfaces (pre-cut plywood or canvas, some walls):

1. Check to make sure the corners of your surface are indeed squared. See guidelines below.

2. Center your grid box on the surface: measure in from the outside edges of your background area. After you draw your box, double-check its dimensions to make sure they are still the same as your map.

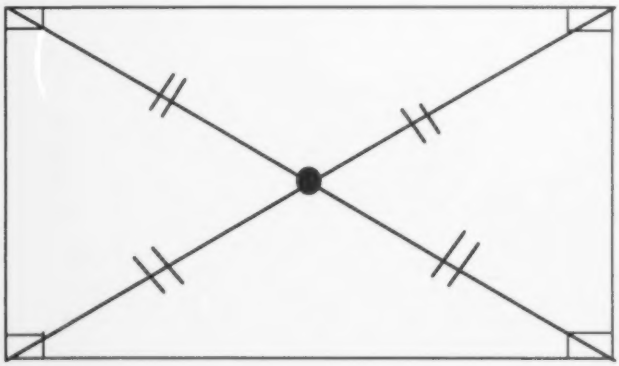
Figure 5: Centering Your Grid Box



Make Sure Your Grid Box is Squared

Recall that each of the four corners should be right angles (90 degrees). An L-shaped carpenter's square (or even a plain piece of paper) can be a useful tool here. Another test: Are your corner-to-corner diagonals of equal length? If they are, you have a squared rectangle. Congratulations!

Figure 6: A Squared Rectangle



Draw Your Grid Lines

1. Mark the horizontal grid lines:

   a. Place a yardstick/meter stick along the left edge of your grid box. The stick's base should abut the grid's bottom line.

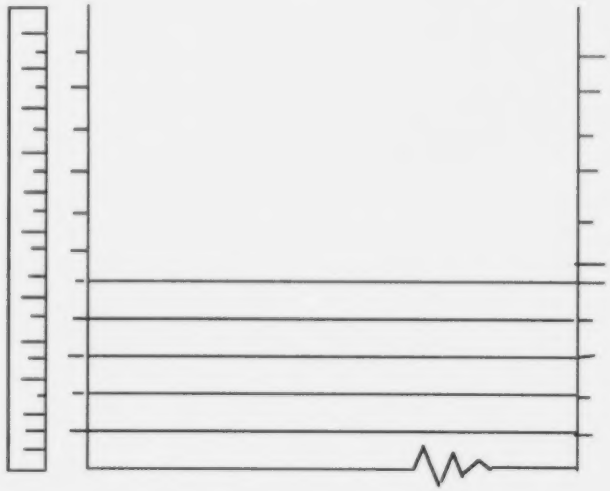
   b. Let **n** = the height of your grid's blocks. Mark points along the left edge every **n** inches/centimeters.

   c. Follow similar steps for marking points up along the right edge of your grid box.

   d. Draw parallel lines connecting the opposite points. Use a pencil and a very long straightedge, such as a thin plank or taut wire/string. (You may need to draw segment-by-segment or devise another strategy if you don't have access to a long straightedge. In any case, do not use chalk lines since they don't work well for walls and they smudge easily.)

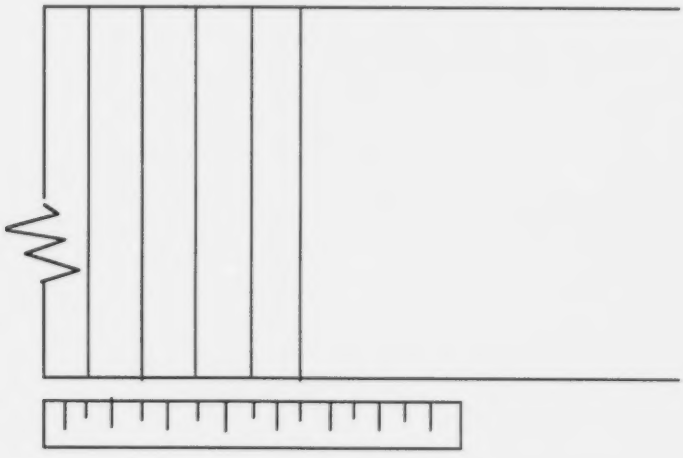
For playgrounds:
Snap a chalk line through each pair of opposite points. Repeat the process until all horizontal grid lines are in place. Immediately paint these chalked grid lines with white paint, as you could quickly lose them within a day to weather or foot traffic. To speed the process, paint a dotted line using the side of a sponge. [This idea came from: David W. David, "Big Maps--Little People," *The Journal of Geography*, (March/April 1990), p. 60.]

Figure 7: Horizontal Grid Lines



2. Mark vertical grid lines: measure and mark points along the top and bottom edges of your grid box as in Step 1 (a - d) on page 13.

Figure 8: Vertical Grid Lines



Number Your Grid

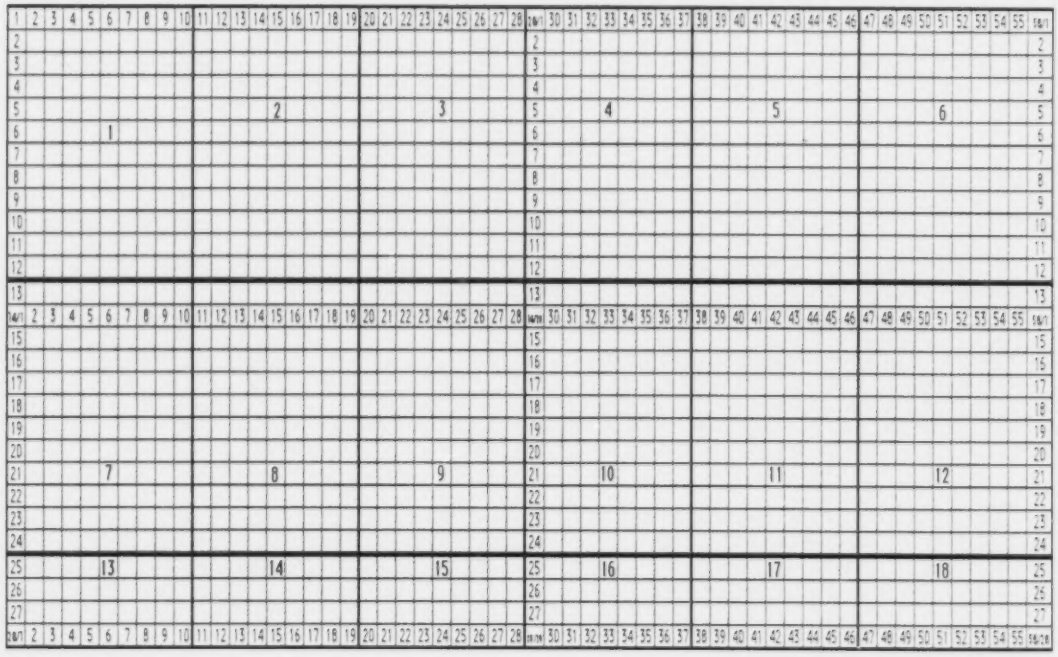
Numbering the grid helps mapmakers stay on target as they transfer blocks of information onto it from the map section sheets.

1. **Number Down**
   Number the 28 grid blocks vertically from top to bottom (1-28) in three places:
   - down the grid's left edge (sections #1, 13, 17)
   - down the grid's right edge (sections #6, 12, 18)
   - down the center of the grid box (which is also the map's prime meridian)

2. **Number Across**
   Number the 56 grid blocks horizontally from left to right (1-56) in three places:
   - across the grid's top row (sections #1, 2, 3, 4, 5, 6)
   - across the grid's bottom row (sections #13, 14, 15, 16, 17, 18, 19)
   - across the center of the grid (which is also the map's equator)

3. **Number Each Section**
   Darken the grid lines that separate the map into 18 sections. Number the section #1-18 as marked on the sheets themselves (p. 42-55).

Figure 9: The Numbered Grid



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Drawing Your Map on the Grid

Now you are ready to draw the whole wide world! Although it sounds like a big undertaking, transferring information from the section sheets onto your grid is relatively straightforward--almost anyone can do it.

Materials:

copies of Practice Exercise #1: Enlarging Drawings By Grid, p. 63
copies of Practice Exercise #2: Drawing Maps by Grid, p. 64-5
copies of map section sheets, p. 42-55
pencils and erasers (most surfaces)
chalk and wet rags (playgrounds)

Practice How to Draw by Grid

1. Hand out Practice Exercise #1, p. 63. This worksheet gives your mapmakers a chance to hone their skills. It also lets you know who among your group may need more assistance. Some people, especially young children, will have a harder time than others enlarging drawings. Those who aren't particularly adept at map drawing, however, make wonderful map painters.

2. Hand out Practice Exercise #2, p. 64-5.

a. Remind mapmakers that the key to success is making sure country borders or coast lines cross the large grid block in proportionately the same place as on the corresponding small grid block.

b. Discuss strategies for drawing difficult map areas:

- For complex borders, subdivide an especially challenging block into four smaller blocks. Be sure to subdivide the same block on the large map grid as well.
- For numerous small islands, draw in a few of the larger South Pacific islands in each island group (Tuvalu, Vanuatu, etc.). Using these islands as reference points, paint the smaller islands directly on your surface.

Devise a strategy for working on the world map itself:

1. How many mapmakers can work on each section?
2. How many sections can they work on at one time?
3. In what order will they draw these sections?
4. Who will check the accuracy of each transferred section? How will it be done?

Drawing the Map

Transfer information from the small map sections onto the corresponding sections of the large grid. Copy block-by-block until you have completely drawn the entire map.

Very Important: When starting to draw in a new area, always check, double-check, and triple-check the coordinates on the section sheets with those on the large grid. Be sure that you begin drawing your country in the correct block. You may want to use paired teams to minimize confusion: one partner "navigates" (points to the correct block and checks the work) while the other draws. Encourage partners to switch tasks.

The Projection Method

This is an alternate way of drawing your map on a wall (or other vertical surface) using an overhead projector. The Projection Method does not involve drawing a grid.

Materials:
transparency of world map, p. 41
copies of map section sheets, p. 42-55
overhead projector
electrical outlet and extension cord
pencils
pencil sharpeners
erasers
masking tape

Steps:
1. Make a transparency of p. 41.

2. Project the transparency onto your wall. Adjust the distance of the projector from the wall until your map is the size you want. To prevent mishap, mark your chosen spot on the floor with a piece of tape.

3. Tape the transparency to the projector to prevent accidental movement. Also secure the projector.

4. Devise a work strategy with your mapmakers:
    a. How many mapmakers can work at one time?
    b. Who will check the accuracy of the tracing? Are all countries accounted for?

5. Trace the projected map information onto the wall. Use pencils.
    a. First trace the large rectangle that frames the map, then the oval map itself.
    b. Now trace the interior lines separating the map into 18 sections. (Refer to Figure 1, p. 10.) Numbering sections 1-18 will be helpful when you refer to the section sheets for coloring and labeling your map.
    c. Trace the continents before drawing individual countries.

6. Once you have completely traced the map, color and label it; see p. 18-20.

Coloring the Map

Materials:
your colored copies of the map section sheets
latex or acrylic paint
containers for paint (screw-on lids sometimes stick)
plastic spoons/cups (for mixing/stirring paint)
brushes of a variety of sizes (small-tipped brushes will keep many painters busy)
rollers and pans (for really big jobs)
rinse water cans
soap and water (for washing brushes)
newspapers (for catching drips)
paper towels
sponges
large erasers for removing the ocean grid lines

Mixing Colors
If you can't get ready-mixed colors, here are some recipes you may want to try. Except for ocean blue, which calls for a half quart of white, the others are measured in teaspoonfuls, as you need only a small amount of each (depending on the size of your map, of course):

Ocean blue = 1/2 quart of white + 3-5 teaspoonfuls of blue
Green = 4 yellow + 2 blue
Light Green = 7 yellow + 1 blue
Purple = 4 red + 2 blue
Lavender = 5 white + 2 purple
Pink = 5 white + 3 red
Orange = 5 yellow + 3 red

Mixing tips
Colors need to be light so that map labels will show up. To prevent a color from becoming too dark, always put the light color in your cup first and add the darker color bit by bit. Always shake your paint before and after mixing for best consistency.

Non-paint possibilities:
wide-tipped colored markers (waterproof)
colored pencils and sharpeners
crayons
white cover-up for errors
colored tissue paper (see p. 70)

To color:
1. Test your colors to make sure they cover your grid lines. If not, erase the affected grid lines. Light colors like yellow may not cover grid lines, even with 2 or 3 coats; mixing a little white with the color may help.

2. Pre-code country colors on the large map. Although mapmakers can consult the colored section sheets, facilitate the process further by putting an appropriate dot of color in each country. This will eliminate questions and confusion while your group is coloring.

3. Decide how you'll color the background area surrounding your oval map, the corner emblems (optional), and a rectangular border (optional).

4. Alert mapmakers to any special care of materials, e.g. how to wash brushes.

5. Devise a work strategy similar to the one you developed for drawing the map. Alternately, develop a job chart. Go over tasks and roles with your mapmakers. In addition to painters, you'll also need map checkers and cleaner-uppers.

6. Paint your map:
   - For best consistency, always shake your paint before using it.
   - Alert painters to the "danger" of painting adjacent to a still-wet country. Colors could mix at the border.
   - If grid lines cross your oceans, erase the lines or touch up with paint.

Labeling the Map

Materials:
copies of map section sheets, p. 42-55
straightedges (optional)
pencils (optional)
extra paint for touch-ups and corrections
permanent black markers (or brushes and paint for really big jobs):
- wide-tipped for oceans, equator, large countries
- medium tipped for medium-sized countries
- thin-tipped for small-sized countries

clear water-based finish (makes the painted surface smoother and easier to write on)

To Label:
1. Prepare your map's surface for labeling, if desired. First brush or spray a thin coat of finish on your map. When you've completed your labeling, add a second coat of finish. First test a small area to make sure that the product is compatible with the marker you used.

2. Decide what you want to label. Some possibilities:
   - continents
   - countries and territories
   - location of capitals
   - bodies of water (oceans, seas, gulfs, bays, lakes)
   - equator
   - details on your emblems and on the compass
   - names of mapmakers
   - date of completion

3. Devise a work strategy:
   - Who will do the labeling?
   - What size(s) will the labels be?
   - Where, exactly, will the labels go?
   - Who will check the accuracy of the labeling (spelling, position)? How will it be done? How will errors be corrected?

4. Label: To minimize errors, labeler(s) may want to first write in pencil and then copy in ink.

Celebrating the Map's Completion

Congratulations! You've finished! Why not hold a celebration to honor all those who helped with the map and to behold the beautiful result of all that collaboration?

Take a group photo in front of the map (and send World Wise Schools a copy) and call in the local TV crews or print media too.

Coincide your "world premiere" with an event like Earth Day or Geography Awareness Week. Invite people from other countries to share song, dance, food with you, or call in some Returned Peace Corps Volunteers. They are happy to speak about personal experiences living and working in countries around the world.

Other ideas: Try out some of the activities detailed in Part II; share slides or photos of the work in progress. Invite parents, classmates, community members, and others to write comments in a guest book. Have fun!

Keeping the Map Current

The world keeps changing. Your map can either be a "snapshot in time" or a periodically updated document. If you opt for "snapshot," do record the date of completion on your map. If you want to keep the map current, keep abreast of political changes in our world. Create a file or compare your map with an updated one. Schedule an annual "catch-up" day to make changes; hang on to your supplies.

Part II: How to Use Your World Map

Activities Before and During Mapmaking

How World Wise Are You?

(all grades)

Time Needed:
One session

Summary:
Mapmakers measure increases in geographical knowledge: they identify countries and/or draw a world map from memory both before and after the World Map Project.

Curriculum Link:
geography: locations of countries/regions

Materials:
pencils
unlined paper
copies of a world map identification sheet

To prepare:
1. Turn to the world map on p. 41
2. Number 10-20 countries/continents/seas, etc. on this map for participants to identify. Adjust the level of challenge to the age and ability of your mapmakers.
3. Make photocopies of this adapted map sheet. Participants can write their answers on this sheet--or devise a multiple choice answer sheet for them to use instead.

Steps:
1. Briefly introduce the World Map Project and get feedback:
   - What kinds of things could we learn by doing this project?
   - What could we specifically learn about geography?
   - Is it important to know where countries are and what they are like? Why?
   - How could we find out whether we have learned more about world geography by doing this project?

2. Introduce the map identification sheet as one way participants can measure how much they have learned about world geography during the course of the project. If appropriate, encourage your group to reflect on the strengths and weaknesses of this kind of assessment:
   - What could this kind of survey measure? (knowledge of specific facts)
   - What couldn't it measure? (attitude changes, understanding of cultural, political and economic realities in other countries. . .)
   - Despite its limitations, how could this survey still be a useful tool for us?

3. Distribute the identification sheets. Ask individuals to complete the survey to the best of their abilities; remind them the assessment is not a test. In addition to (or instead of) using the map identification sheet, have participants draw and label a map of the world from memory.

4. Collect the completed sheets. Do not go over the surveys with your group at this time. Remind your group they'll take the same survey (or draw another map) at the end of the project. They will then compare results of the two assessments to see how making the map affected their knowledge of geography. At the end of the project, you might also ask mapmakers whether they have also noted other changes, such as increased interest in global issues and/or gains in confidence.

Create Your World

(grades 3-9)

Time Needed:
Several sessions

Summary:
Mapmakers design and conduct a survey whose results help them plan the specifics of their world map-to-be. This activity encourages an early sense of project ownership among mapmakers. Taking the survey to the community publicizes the World Map Project and creates a wider circle of interest and support.

Curriculum Link:
language arts: written and oral communication
mathematics: compiling, quantifying, and graphing data

Materials:
copies of a world map survey which your group will design during the activity
graph paper or pie charts to record survey data (optional)
chalkboard or flip chart

Steps:
1. Inform your group they'll be designing a survey that will help them make decisions about how to make their map. Have group members identify some of the decisions they need to make about their world map (see p. 5-6 for ideas). Record these questions on the chalkboard.

2. Work with your group to develop these questions into a brief survey similar to the example below. Questions should have easily tabulated answers (e.g., yes/no), but consider asking an open-ended question or two as well:

Example: "We're planning to make a really big world map. . ."
- Do you think this is a good idea? yes/no (Why or why not?)
- Of the following locations, which is the best place for our map?
- Of the following colors, which 5 should we use to paint the countries?
- Of the following sizes, which size map would you like us to make?
- Would you like to help with this project? yes/no (In what ways?)

3. Have your group first survey themselves:
- Distribute copies of your survey.
- Have pairs survey one another.
- When everyone has been surveyed, record the results of the survey on a chalkboard or flip chart.
- Have teams of 4-6 persons analyze specific portions of the survey data. (For example, team #1 analyzes all the data about map color preferences). Charge each team to visually represent that data using bar graphs or pie charts. Have them present their findings to the whole group.

4. Extend the survey process to your whole school or local community:
- Have each member in your group survey three or more people. Be sure to first discuss survey etiquette. You may want community surveyors to travel in pairs, or with an adult; secure parental permission if necessary.
- Compile the results by dividing the surveys among several teams. Have each team contribute its tabulations toward a whole group total. Record results on the chalkboard.
- Now have teams analyze specific portions of the totaled data as in #2 above.

• Have each team present its findings to the whole group. Compare the results of this larger survey with the smaller in-group survey. Make preliminary project decisions based on the results of the survey(s).

5. Writing assignment: have group members do any of the following:
   • Summarize their team's data or impressions in a paragraph;
   • Compare/contrast the survey results: 1) between group teams, or 2) between the whole group and the wider community;
   • Draft a news release detailing the World Map decisions reached by your group; publish it in the school or local newspaper--let your community know what you're up to!

Drawing by Grid

(all grades)

Time Needed:
One session

Summary:
Mapmakers practice drawing by grid in preparation for drawing countries on the world map.

Curriculum Link:
mathematics: measurement, ratio and proportion
geography: shapes and locations of selected countries/regions

Materials:
world map, p. 41 (optional)
map sections sheets, p. 42-55 (optional)
copies of Practice Exercise #1: Enlarging Drawings by Grid, p. 63
copies of Practice Exercise #2: Drawing Maps by Grid, p. 64-5
chalkboard or flip chart

Steps:
1. Give a brief overview of the Grid Method. Mapmakers will quickly grasp the idea if you visually demonstrate what you're talking about. Make a few simple sketches and show the gridded world map (p. 10) or map section sheets (p. 42-55).

2. Have mapmakers practice making an enlarged drawing by grid: distribute Practice Exercise #1.

3. Have participants specifically practice drawing map sections by grid: distribute Practice Exercise #2. Discuss strategies. See p. 16.

Peace Corps Connection:
Have mapmakers draw a map of the Volunteer's host country using the Grid Method. You will need to do some advance preparation: Obtain a simple map of the Volunteer's country, construct a grid on it, and make photocopies. Also make and photocopy blank grids to transfer the drawing onto. Have mapmakers locate the Volunteer's site on the map.

Changing the World

(grades 6-12)

Time Needed:
One session for map work and one session for research

Summary:
Participants note changes in political geography by comparing a section of the world map against an earlier map of the same region.

Curriculum Link:
language arts: written and oral communication
geography: location of countries/regions
social studies: political history
research skills

Materials:
copies of world map section sheets or world map (if completed)
out-of-date map resources (atlases, encyclopedia)--the older the better
current encyclopedia

Background:
The world keeps changing: the seas swell and recede, the continents drift, and land forms literally rise and fall. Geological changes may be often imperceptible within one human lifetime, but political change can be rapid. Nations too rise and fall, reshape borders, change names, and gain new capitals. Because of these historical changes, mapmakers are constantly re-drawing the world. In this activity, participants will look for changes in the world's political geography. For a tighter focus, you may want to adapt the lesson to address regions particularly rich in recent change: Europe, Africa, and/or Asia.

Steps:
1. As introduction, draw your group's attention to the dynamic nature of the world map. Discuss:
    - What type of information on the map could be considered unchanging? Why?
    - What kind of information is subject to change? Why?

Inform your group they'll be looking for examples of how countries/regions on the world map have changed over time. Can anyone give an example of a recent change in political geography?

2. Divide regions of the world among teams of 2-4 persons. Assign specific section sheets to each team, as below, or make your own regional divisions.

#2 (North America)
#3 (North Atlantic)
#4 (Eastern Europe)
#5 (Asia)
#6 and #1 (North Pacific)
#7 and #8 (South America)
#9 and #14-17 (South Atlantic and Antarctica)
#10 (Africa)
#11 and #12 (India/Australia)

3. Instruct each regional team to check the geographic information (borders, names of countries, capitals, rivers, etc.) on its map section(s) against an out-of-date map. Have team members note the following:

- What year was the resource you consulted published?
- What changes (if any) in borders, names of countries/capitals, etc. do you find since that date?

Note: Your world map is drawn according to the Robinson Projection. The resource maps you consult may represent other projections. The difference in projections may affect the shape of land masses within a region. Greenland, for example, appears quite differently in the Robinson Projection than on the Mercator Projection. Alert your group to this possibility.

4. Challenge your teams to find out the reasons for the specific changes in political geography they discover; have them research the history of these countries or regions.

5. When research is complete, have teams share their findings with the whole group. Ask them to point out the changes on the world maps explaining reasons for those changes, if known.

Peace Corps Connection:
Have your group pay particular attention to changes in the political geography of the Volunteer's host country or region. Encourage your group to share its findings with the Volunteer. Have group members ask the Volunteer to provide more detail, if possible, or to explain even earlier instances of change in that nation's political geography.

Activities for a Completed World Map

Musical Countries (a game for playgrounds and other flat maps)
(grades 3-5)

Time Needed:
One session

Summary:
Participants use the world map to play a geography game similar to musical chairs.

Curriculum Link:
geography: location of countries/regions
music: music of various cultures
physical education: outdoor game with listening skills

Materials:
world map as painted on a playground or floor
one tape player
music tapes of various cultures
individualized chip or playing piece (one per player)--optional
geography game cards

To prepare:
Create geographic criteria that, when read, will eliminate players from the game (see rules below). Write one statement per card. For example, a card that states *all equatorial countries* will force all players standing on countries straddling the equator to sit down (or remove their chips from play).

Sample criteria:
all South American countries
all landlocked countries
the Pacific Ocean
all countries east of India and west of Japan
all countries bordering the Atlantic Ocean
all land and sea locations in the Northern Hemisphere

Background:
This activity is designed for playgrounds where players can run around; however, you can adapt the game for smaller flat surfaces as well by playing with chips or game markers instead.

Steps:
Inform your group it will be playing a game on the world map somewhat similar to musical chairs. The rules are as follows:

1. While the music plays, everyone is free to roam the Earth (or move his or her chip).
2. When the music stops, players must freeze in their tracks, and listen carefully to the statement you read from the game card you have randomly pulled from the pack.
3. Players whose position on the map is described by what you read on the card must remove themselves from play. Have them sit down near the map's border (or remove their chips).
4. Players continue to roam and halt according to the random breaks you make in the music. As the game progresses, fewer and fewer players will remain. Those still in the game after a predetermined length of play are world champs!

What Shape Am I?

(grades 3-9)

Time Needed:
One session for map work and one session for research

Summary:
Participants trace shapes of particular countries on the world map and discuss reasons for the locations of specific borders.

Curriculum Link:
geography: location, shape, and topography of selected countries
social studies: political history of selected countries
research skills

Background:
Physical factors such as rivers, mountains, and coastlines often form natural boundaries for a country. Many times, however, a country's shape reveals as much about its history as its topography. Human factors such as wars, treaties, ethnic demographics all influence borderlines too.

Materials:
world map
sheets of tracing paper (or thin typing paper)
cellophane tape (if needed)
reference materials (topographical atlases, encyclopedia)
colored pencils, crayons, or markers
chalkboard or flip chart

Note: You can adapt this activity for different ages and interests. Emphasize steps 1-4 for younger groups, steps 4-7 for older groups.

Steps:
1. Invite participants to join you in a hunt across the map for countries with interesting shapes. Many people see a boot and soccer ball when looking at Italy and Sicily; what do you see in Cuba? Australia? Senegal? Encourage imaginative responses.

2. Divide participants into pairs and have each pair trace on paper one or two countries from the world map whose shape is especially interesting to the two of them. Pairs may also want to color and/or decorate their traced shapes to illustrate what they resemble (e.g. , put eyes on a country shaped like an animal).

3. When everyone is done, have pairs share their shapes with all or part of the whole group.
   - What do we "see" in the shape of this interesting country?
   - Who can identify this "mystery" country and/or locate it on the world map?

Variation:
Invite pairs to share their shapes with the group without divulging the name and location of the country in question. After all shapes have been shared, distribute them to small teams. Challenge each team to work together to discover the name and location of each mystery country.

4. Re-focus your group's attention to reasons why countries have different shapes. Discuss:
   - Why aren't all countries the same size?
   - What causes countries to have different sizes and shapes?
   - Do countries ever change shape? Why? Can anyone give an example?

5. Have pairs (or individuals) find out why their chosen country has the shape it does. Have them consult a topographical map of their country and also research its history.

While they may not find reasons for the location of every border, challenge your researchers to identify as many factors as they can. For example, does a river or mountain range form the southern boundary; does a straight eastern edge suggest a political division? Encourage researchers to write down their findings on their individual maps, near the borders in question.

6. Have pairs share their findings. Make a list on the chalkboard of the most common factors influencing the placement of a country's borders.

7. Display everyone's labeled drawings next to the world map, if possible.

Peace Corps Connection:

1. Have participants analyze the shape of the Volunteer's country in a way similar to step #5 above. Make predictions about what caused the borders of this nation to be drawn where they were. Share the predictions with the Volunteer.

2. You may also want to ask the Volunteer to describe the size/shape of his or her country at an earlier point in its history. Why is it no longer this shape? What impact, if any, have these changes had on the country and its people?

We are the World

(all grades)

Time Needed:
Two sessions several days apart

Summary:
Participants trace their family heritage on the world map.

Curriculum Link:
social studies: immigration
geography: location of countries/regions
mathematics: quantifying data, creating charts

Materials:
world map
adhesive colored dots which can be easily removed from the world map surface
chalkboard or flip chart

Background:
You can do this activity in one session. If many in your group are unsure of their heritage, however, you may want to do steps 3 and 4 several days later so these participants have a chance to talk to their families. As this activity involves personal information, you'll want to be sensitive in the manner in which you conduct it. Adapt the activity as necessary.

When introducing this activity, remind students that the United States is primarily a country of immigrants. Some of our ancestors came to the U.S. long ago, most freely, some by force. Others have arrived more recently. Only Native Americans have lived here for thousands of years, though long ago their ancestors arrived from other continents as well.

Steps:
1. Have participants consider immigration issues in general. Discuss and record ideas:
    - Why do people immigrate? How many reasons can you think of?
    - What would it be like to leave a country and come to a new one? What would be difficult about doing so?

2. Inform your group that it will use the world map to locate what regions members' families originally came from.

Share your own genealogical history with participants. Place a dot on the country(ies) or region(s) you believe your ancestors came from. You may also want to explain the reasons for their immigration to the U.S., if known.

3. Invite everyone to place dots on the world map representing his or her family heritages. Those who may not know their specific ancestry can still place dots indicating likely world regions (Asia, Africa, Europe, and so on).

4. Survey the results as a whole group. Solicit general reactions, then discuss:
    - Which countries/regions seem to have been home for many of our ancestors? Why might so many people from this world region have settled in this area of the U.S.?
    - How might our dot distribution look different if we lived in a rural/urban area? Why?
    - How might our dot distribution look different if we lived on the West Coast or East Coast? In the U.S. Southwest/South/Midwest/Alaska or Hawaii? If we all lived in (name of another nation)? Why?

• How would our dot distribution have looked different 100 years ago? Why? What might it look like 50 years in the future? Why?

Peace Corps Connection:
Have your group ask the Volunteer about the cultural diversity in his or her host country:

• Does the Volunteer's country have many people who trace their heritage to other lands? Why or why not?

• If people in the Volunteer's country trace their ancestry to other places, what places are these? Why did people from these lands settle in the Volunteer's country? How did they get there?

Variation:
Gather recent U.S. Census information about your region from a public library. Among other things, the Census breaks down information about your region's population by country of ethnic origin. Convert this data to percentage and have your group post this distribution on the world map as in steps 3 and 4.

Made In. . .

(all grades)

Time Needed:
One or two sessions

Summary:
Participants locate countries on the world map that have manufactured common objects in their daily lives.

Curriculum Link:
geography: location of countries/regions; natural resources
social studies: global economics; trade routes

Materials:
world map
small squares of paper which can easily be affixed and removed from the world map
cellophane tape (if needed)
pencils
30-50 readily available objects from everyday life

The items must indicate their country of manufacture, e.g., "Made in China." You can collect them before the activity or wait and have participants gather them from their immediate surroundings. In a school setting, items could include any or all of the following:

- classroom objects (globe, crayon box, ruler, and so on)
- contents of student backpacks or desks, voluntarily shared
- labeled apparel (shirts, shoes, jackets), voluntarily shared

Background:
This activity introduces the concept of the interdependent global economy. Through just a sampling of items, participants identify a few patterns in international trade. In many cases, the patterns would have been far less complex one hundred years ago when a locality's economy expanded little beyond its immediate region. Today, of course, is a different story. Because of advances in technology and infrastructure, natural resources move freely across the world and manufacturing centers dot the globe.

Keep in mind that many countries exporting goods may not be represented in your map sample. First, your sample is very small. Big U.S. import items such as automobiles, electronics, and petroleum products probably will not be represented in your sample at all. Second, not all nations trade primarily with the United States; other markets exist for both geographic and political reasons.

Currently the United States imports more than it exports. A nation imports items for a variety of reasons: it may lack the human or natural resources to manufacture the specific product; national demand may outstrip the ability to provide the item; and/or it is more economical to import the item than to manufacture it within country.

Steps:
1. Inform your group it will be investigating where everyday objects have come from. In anticipation of the lesson, have members "guess-timate" what percent of items they find will be made in the U.S. compared to those made overseas.

2. Have participants work individually (or in pairs) to locate items in their immediate environment that state their country of manufacture. To avoid duplication of effort, you may need to assign teams to specific search areas.

3. Instruct searchers to draw a small sketch of each item on a paper square . Have them also label the drawing with the name of the item and its country of origin.

4. When participants have identified and drawn at least 30 different items, have them go to the map and affix their squares by the relevant countries.

5. As a group, examine the product distribution on the world map. Solicit general reactions; then analyze the data by country, region, or continent. Look for patterns both in distribution and in types of items exported from particular regions. Discuss:

a. What regions of the world seem to be the source of many of our imported items?
- Any pattern to the type(s) of items we import from this region?
- Why might this region export these particular things to the U.S.?
- How would items from this region reach the U.S.? What routes might the items take to get here? How long might that take?

b. What regions of the world aren't as well represented in our sample? What might be some of the reasons for this?

c. How would our product distribution have looked different 50/100 years ago? Why?

d. What countries/regions of the world do you think import items from the U.S.? Why? What kind of items might these be? Why?

6. For advanced groups: Have members group research topics related to U.S. trade relations with other countries. Have researchers share their findings with the whole group, making use of graphs/charts and the world map as appropriate. Possible topics:

a. major U.S. import/export items

b. major U.S. trading partners

c. major trade routes to and from the U.S. (Trace them on an overlay; see p. 36-7)

d. trade imbalances and economic effects

e. major exports/imports of selected foreign nations

Variation:
Have participants identify types and sources of all materials used to make one specific everyday product, such as a pencil, a chocolate bar, a running shoe. They'll need to write to the manufacturer for assistance. Share and post the information on the world map as it becomes available.

Peace Corps Connection:
1. Have your group research the major imports and exports of the Volunteer's country.

- Why might this country import the items it does?
- Why might this country export the items it does?
- With what nations does this country trade? Why?

2. Ask the Volunteer to list common manufactured items in his or her host country. Where were these items made? Post this data on the map as in step 4. How are the patterns similar/different from the U.S. import data? Why might this be?

World Watersheds (grades 6 and up)

Time Needed:
Varies

Summary:
Participants compare/contrast data drawn on an overlay across their world map

Curriculum Link:
varies

Materials:
world map
atlases that depict major rivers in each of the world's regions
large sheets of acetate or other transparent plastic sheeting to cover the world map
strong adhesive tape
markers to use on the plastic overlay: permanent or washable--your choice, but test on the overlay beforehand
reference materials related to your specific topic

Steps:
1. Secure a sheet (or sheets) of plastic across your world map.

2. Have participants use markers to trace the outline of the continents and large land masses onto the plastic overlay.

3. Assign participants to specific regions on the map. Have them locate the major river systems in that area.

4. When the watershed overlay is complete, have participants look for connections between their data and the information on the world map beneath the overlay:

- How frequently do rivers form natural boundaries between countries?
- How frequently are country capitals located on a river or near a body of water?

5. Extend the investigation by doing a second overlay directly on top of the first. Repeat steps 1 and 2. This time have participants consult atlases to depict one of the following: mountain ranges, location of major cities, regional population densities. Analyze the results:

- What connections do participants see between any of these depictions and the location of water systems?
- What predictions could they make about specific countries on the world map based upon these additional dimensions of information?

Variations:
global patterns in vegetation
global climate zones
global patterns in agriculture
global patterns in population
distribution of world's language groups
distribution of world's major religions
former areas of colonialism
ocean currents
historic routes of explorers/navigators

current trade and travel routes
hurricane tracking
jet stream/prevailing wind patterns
areas of acid rain fallout
wildlife of the world (tape pictures of animals to country/regions of habitat: where is it possible to predict the climate or terrain of that region based upon the type of wildlife living there?)
bird/whale migration routes
global reserves of oil and other natural resources
earthquake/volcano zones
plate tectonics
daily temperatures in select cities
locations of world-famous monuments/structures
time zones
world tours
hot spots in the news
comparative data between nations: per capita GNP, consumption rates, infant mortality rates, water use, AIDS cases, population density, percent of persons under 15, military expenditure

Math and the Map

Summary:
Participants use data from the world map to reinforce mathematical skills.

Curriculum Link:
geography
mathematics

Materials:
world map
paper and pencils
reference materials as needed

Background:
You can incorporate the world map into many areas and levels of mathematics. Adapt the activities below to the needs and abilities of your particular group.

Estimation:
• Numbers of countries in a given region.
Example: How many countries would you guess are in Africa?

• Areas of countries in relation to one another.
Example: How many times might France fit within the continental United States? How could we find out? (Note: the Robinson Projection, like other map projections, creates some slight land-mass distortions.)

Venn Diagrams (sorting by principle):
Sets and subsets of countries sharing given criteria.
Example: Which equatorial countries in South America and Africa are landlocked?

Advanced Calculations:
• Adding/subtracting time.
Example: If it's 5:30 a.m. in Bangkok, what time is it in Washington, D.C.? (You'll need to a have time zone chart handy, or make an overlay--see p. 36-7.)

• Calculating population density.
Example: How does the population density of Bangladesh compare with that of Pakistan? of the United States? (Divide area by population and post the figures on the map.)

• Using fractions.
Example: What fraction of Central American countries border both the Atlantic and Pacific oceans?

• Finding percentage.
Example: What percent of African nations are in the Northern Hemisphere?

Graphs and Charts:
• Creating bar graphs to compare information between countries.
Example: What are the five most populous nations in Asia?

• Creating pie charts.
Example: What percent of Caribbean islands are territories? What percent of these belong to the United Kingdom? the United States?

Interpreting Statistics:
Comparing similar data among different countries, representing information in a visual, non-graph way.

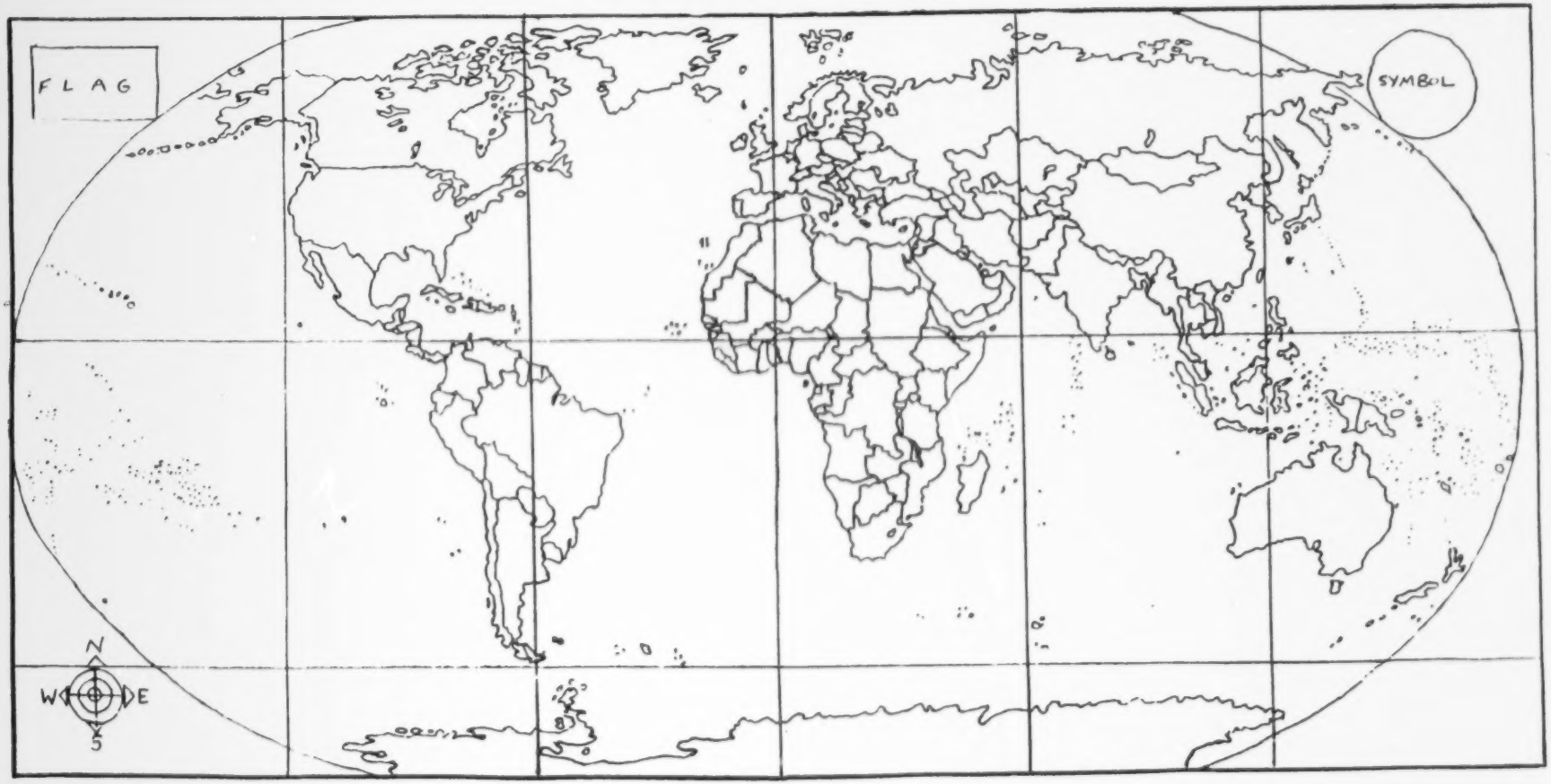
Example #1: Using a resource like a world almanac, find the per capita GNP for various nations. Represent this information on your map, using adhesive (but removable) sticker dots, where one dot = x number of dollars. Remember to create a key to accompany your dot display.

Example #2: Collect daily temperature readings from cities around the globe (check daily paper). Post the data on the world map:

- track temperature patterns for one or more days
- calculate average daily highs/lows, or range
- search for patterns in global temperature distribution: What's the effect of longitude? latitude? being near bodies of water? elevation?

Part III: Resources For Making Your World Map

The World Map



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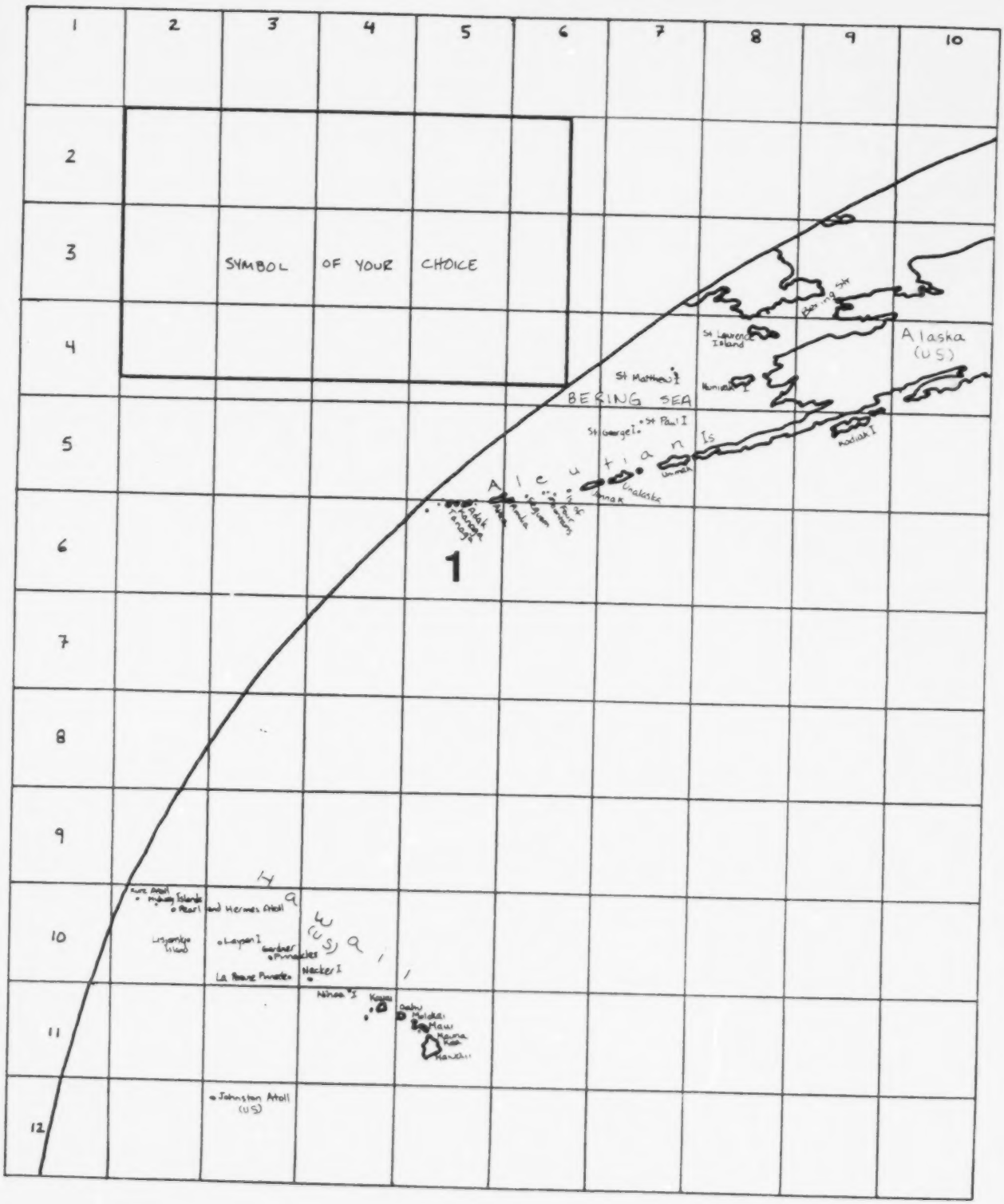
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SYMBOL OF YOUR CHOICE
BERING SEA
St Matthew I
St George I
St Paul I
Unalaska
Umnak
Alaska (US)
St Lawrence Island
Nunivak I
Nunivak I
Kure Atoll
Midway Islands
Pearl
Laysan I
Gardner Pinnacles
Necker I
La Perouse Pinnacle
Nihoa I
Kauai
Oahu
Molokai
Maui
Hawaii
Johnston Atoll (US)

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ARCTIC OCEAN
BEAUFORT SEA
Alaska (U.S.)
Great Bear Lake
Great Slave Lake
Athabasca
Reindeer Lake
Lake Winnipeg
HUDSON BAY
Queen Charlotte Islands
Vancouver Island
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CANADA
UNITED STATES
Gulf of California
MEXICO
Gulf of Mexico
BAHAMAS
CUBA
GREATER ANTILLES
HONDURAS
BELIZE
GUATEMALA
NICARAGUA
EL SALVADOR
Bermuda (U.K.)
Turks and Caicos Is. (U.K.)
Cayman Is. (U.K.)
Puerto Rico (U.S.)
Virgin Is. (U.S.)
Anguilla (U.K.)
Montserrat (U.K.)
Antigua and Barbuda
Guadeloupe (FR.)
DOMINICA
Martinique (FR.)
ST. LUCIA
BARBADOS
ST. VINCENT AND THE GRENADINES
GRENADA
LESSER ANTILLES

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ARCTIC
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(DENMARK)
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BAY
Baffin I
Ellesmere Island
GREENLAND SEA
Jan Mayen
(NORWAY)
Denmark Strait
ICELAND
Shetland Is
Orkney Is
LABRADOR
SEA
3
IRELAND
UNITED KINGDOM
English Channel
FRANCE
Gulf of St. Lawrence
St. Pierre and Miquelon Is. (FR)
Graciosa
Terceira
São Miguel
Santa Maria
Azores (PORT)
SPAIN
Madeira Islands
(PORT)
Porto Santo
Ilhas Desertas
NORTH ATLANTIC OCEAN
Canary Islands (SPAIN)
Gomera
Tenerife
Gran Canaria
Fuerteventura
Lanzarote
(INCL. CEUTA)
MOROCCO
ALGERIA
MAURITANIA
MALI
Santo Antão
São Vicente
São Nicolau
Sal
Boa Vista
Maio
Santiago
Fogo
CAPE VERDE
SENEGAL
GAMBIA
BURKINA FASO

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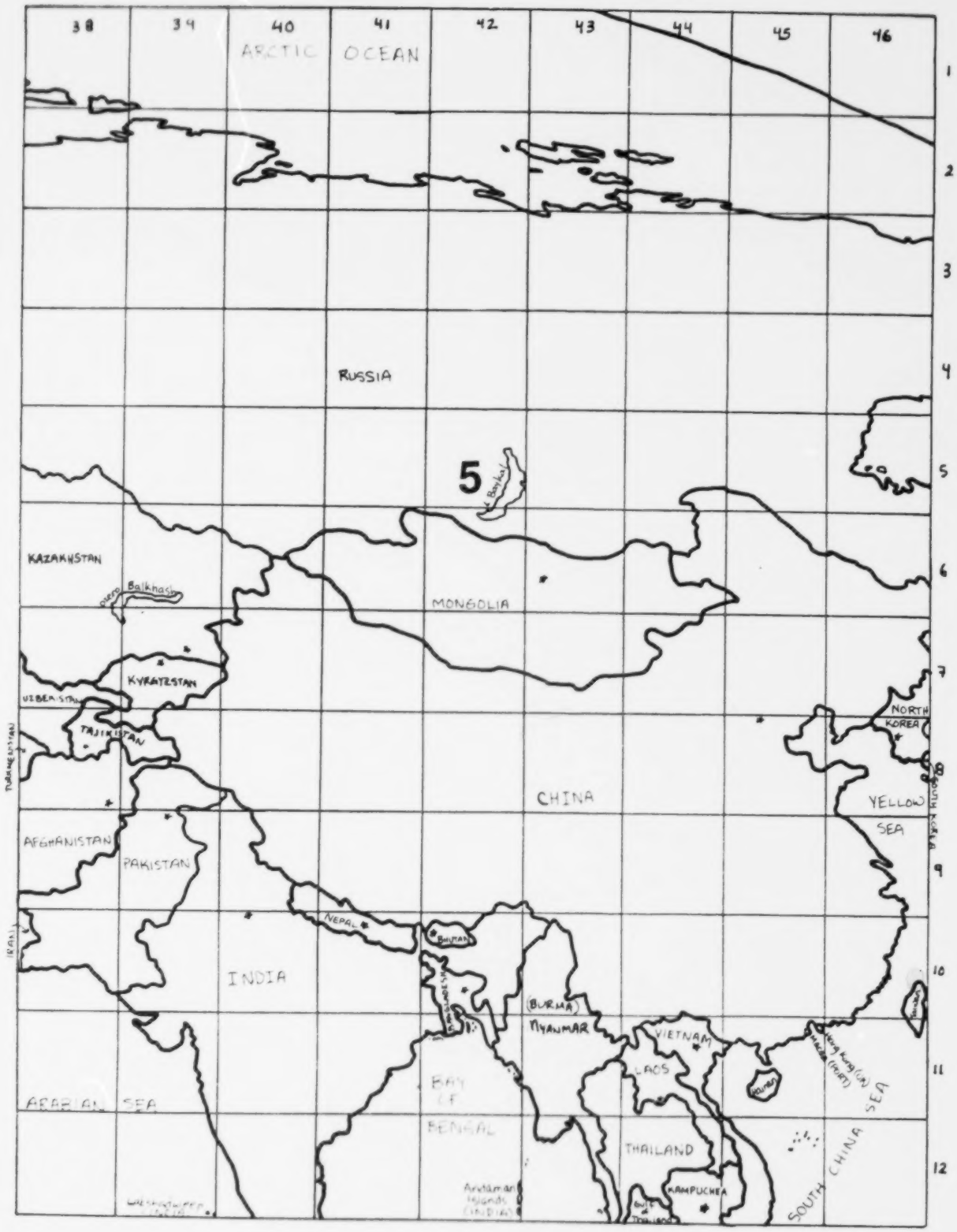
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ARCTIC OCEAN
RUSSIA
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Baykal
KAZAKHSTAN
Balkhash
MONGOLIA
KYRGYZSTAN
UZBEKISTAN
TAJIKISTAN
NORTH KOREA
CHINA
YELLOW SEA
AFGHANISTAN
PAKISTAN
NEPAL
Bhutan
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MYANMAR
VIETNAM
LAOS
Kampuchea
THAILAND
BAY OF BENGAL
ARABIAN SEA
SOUTH CHINA SEA
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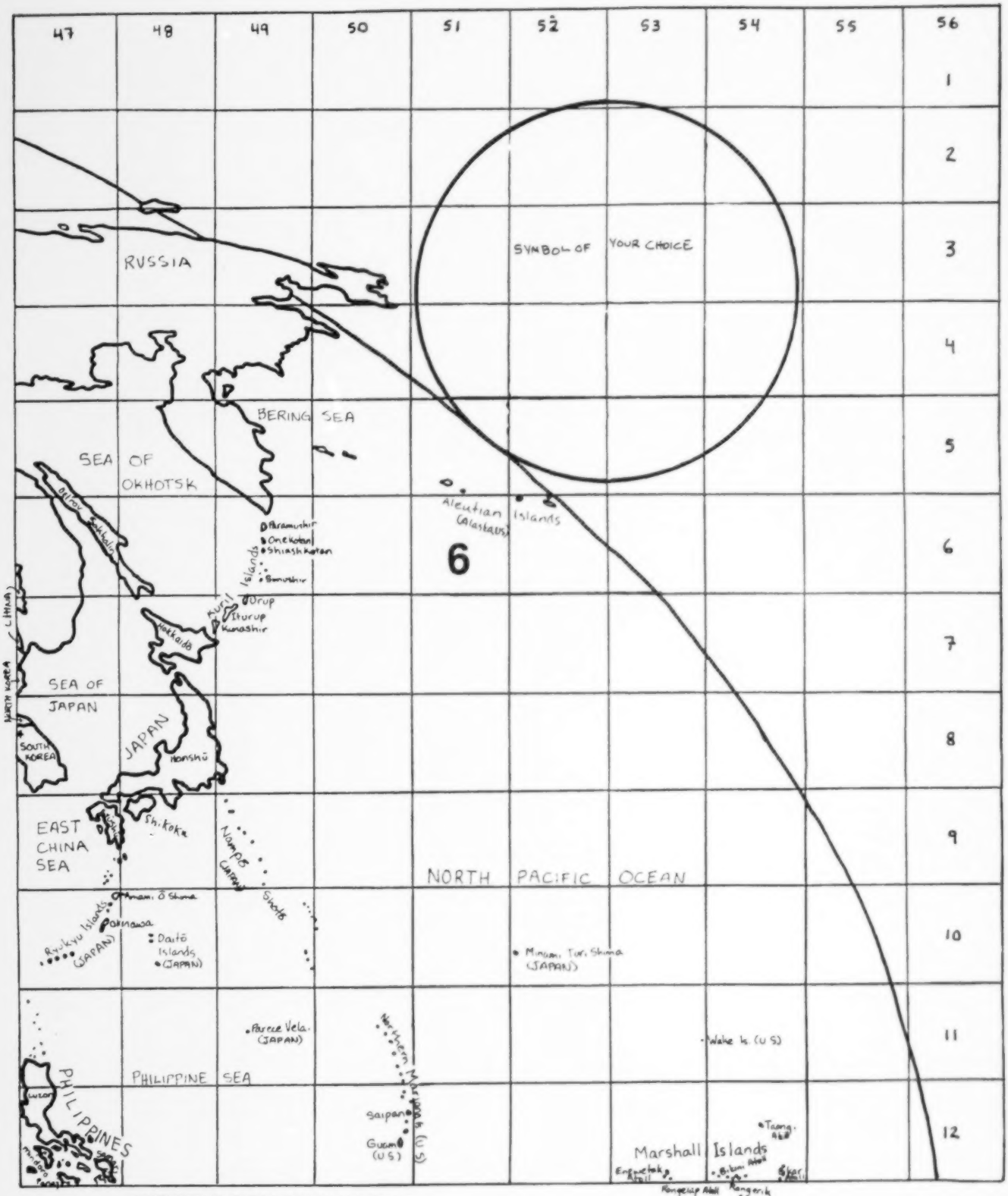

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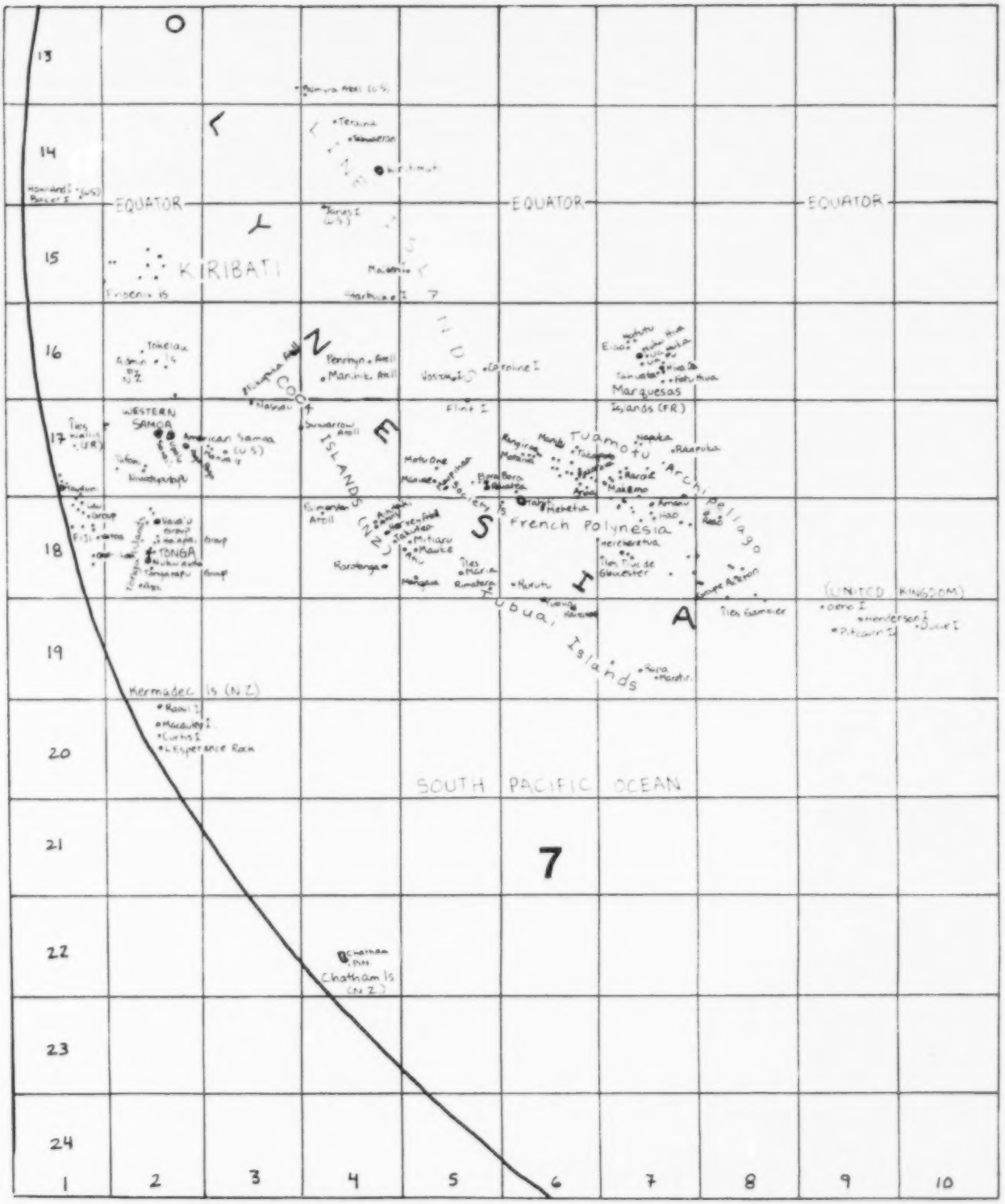

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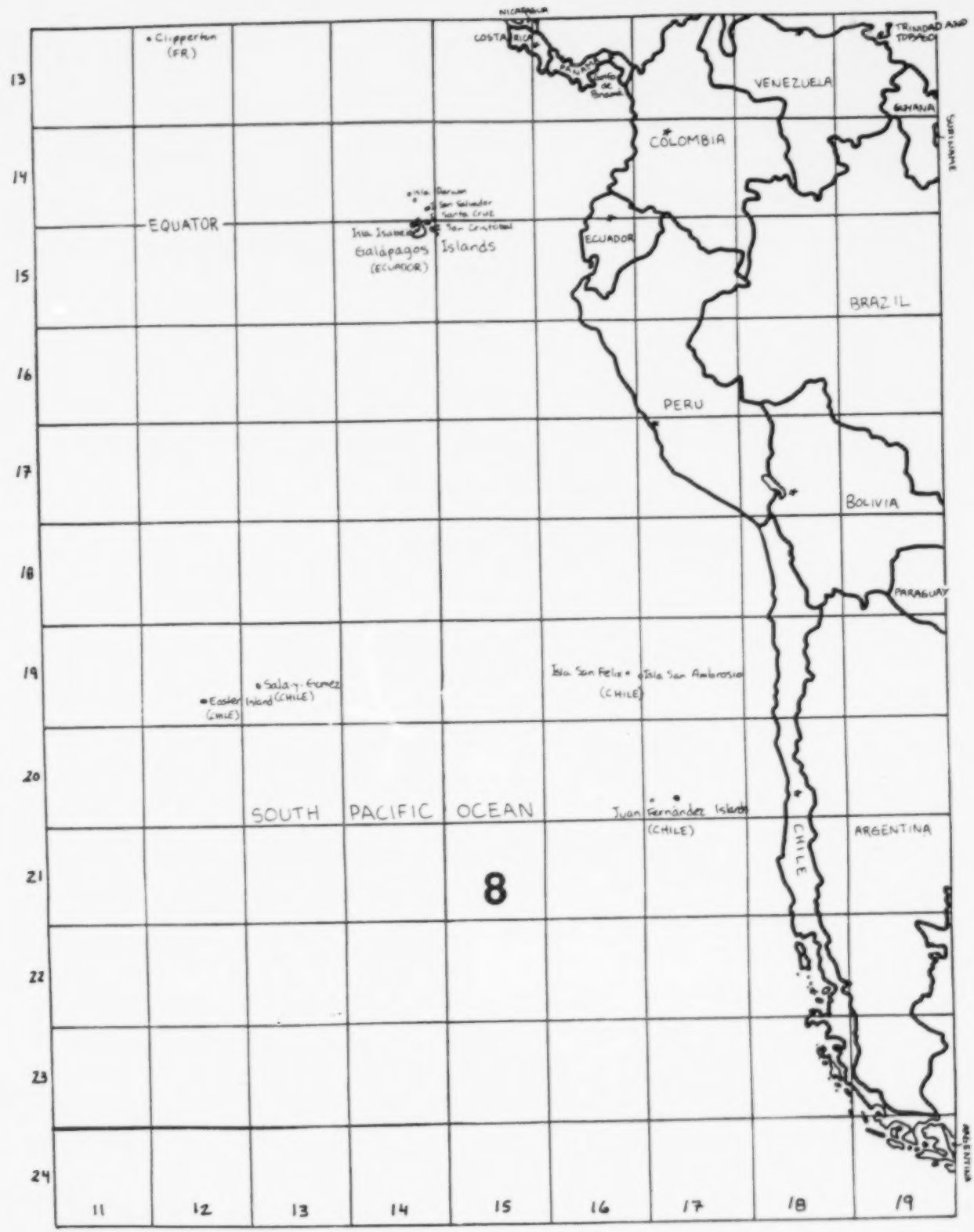
NICARAGUA
COSTA RICA
Islands de Barlovento
TRINIDAD AND TOBAGO
VENEZUELA
GUYANA
SURINAME
COLOMBIA
Clipperton (FR)
Isla Darwin
San Salvador
Santa Cruz
San Cristobal
EQUATOR
Isla Isabela
Galápagos Islands
(ECUADOR)
ECUADOR
BRAZIL
PERU
BOLIVIA
PARAGUAY
Sala-y-Gomez Island (CHILE)
Easter (CHILE)
Isla San Felix
Isla San Ambrosia
(CHILE)
SOUTH PACIFIC OCEAN
Juan Fernandez Islands
(CHILE)
CHILE
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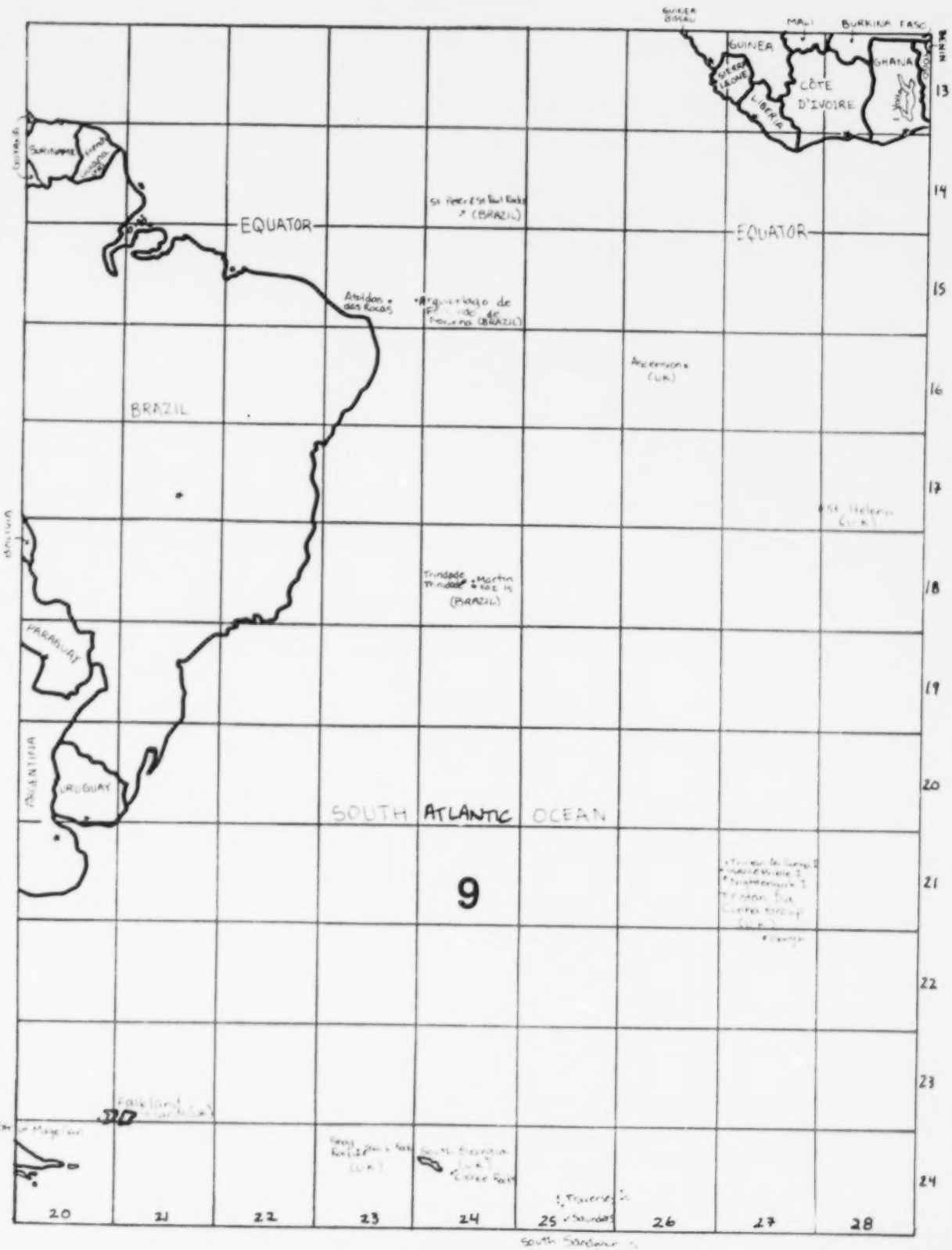
GUINEA BISSAU
MALI
BURKINA FASO
GUINEA
SIERRA LEONE
LIBERIA
CÔTE D'IVOIRE
GHANA
TOGO
BENIN
SURINAME
GUYANA
EQUATOR
EQUATOR
St Peter & St Paul Rocks (BRAZIL)
Atoll das Rocas
Arquipelago de Fernando de Noronha (BRAZIL)
Ascension (UK)
BRAZIL
St Helena (UK)
BOLIVIA
Trindade Martin Vaz Is (BRAZIL)
PARAGUAY
ARGENTINA
URUGUAY
SOUTH ATLANTIC OCEAN
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Falkland Is
Tristan da Cunha Group
South Georgia (UK)
Shag Rocks (UK)
Bouvet I
South Sandwich Is (UK)
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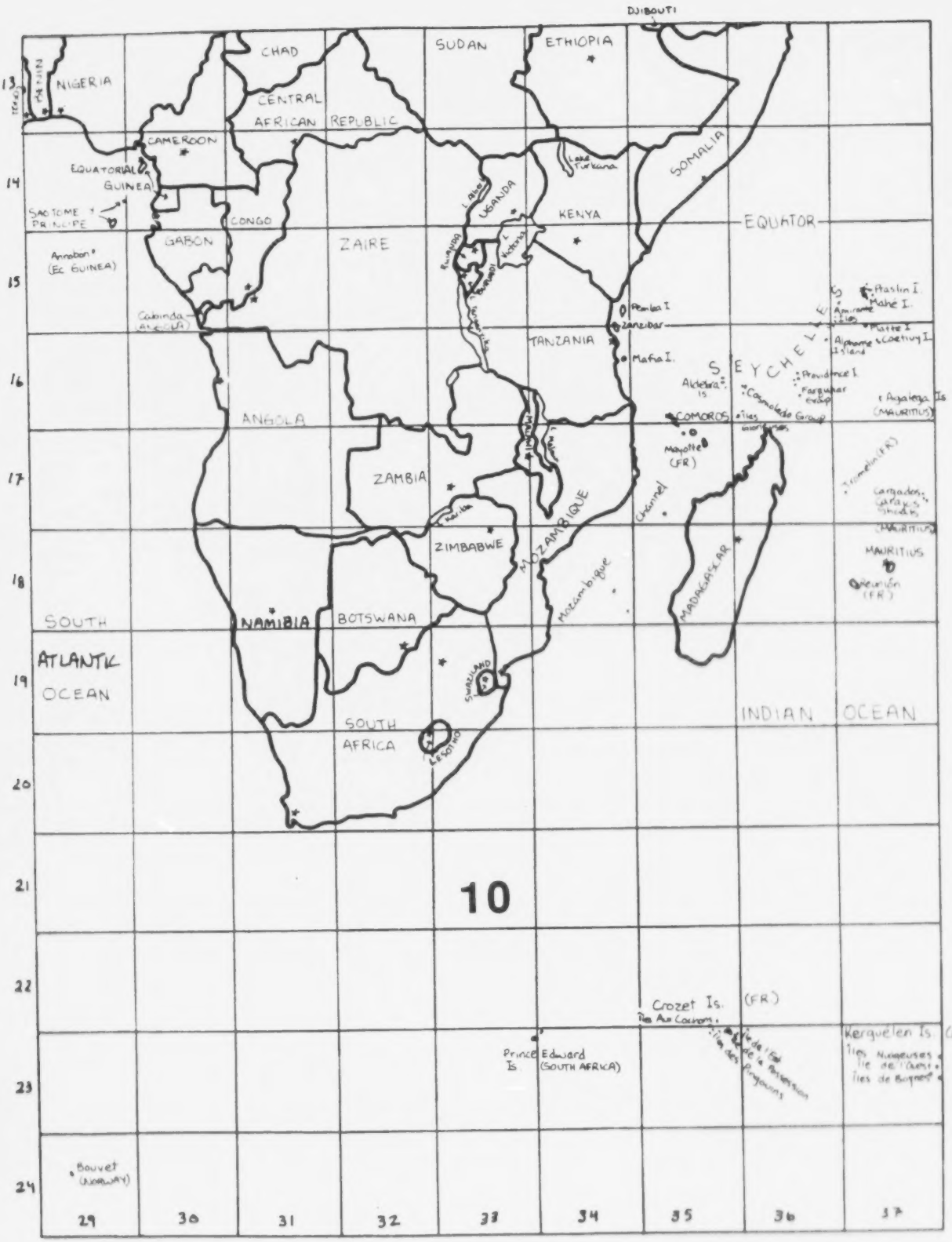

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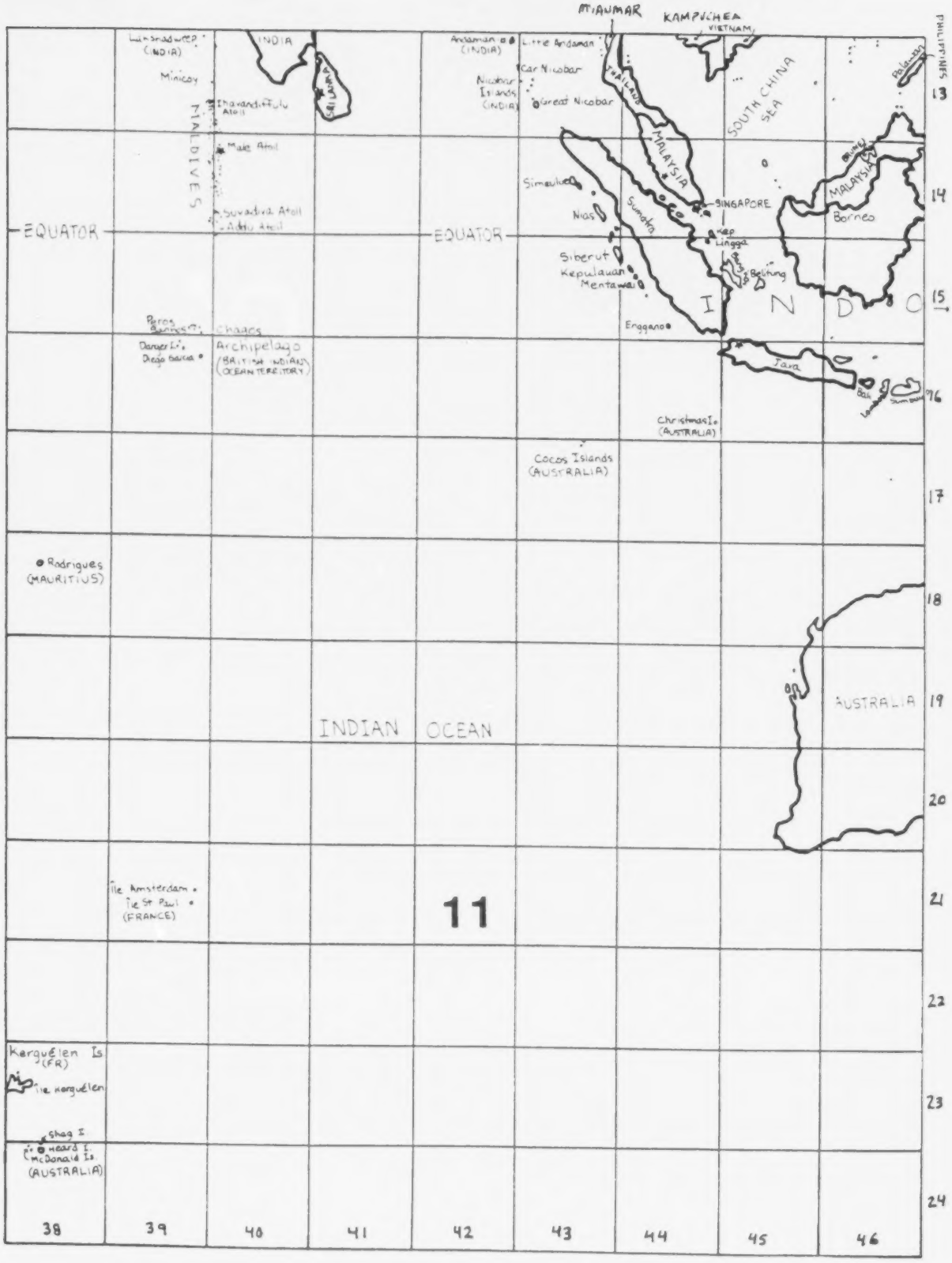
MYANMAR
KAMPUCHEA
VIETNAM
PHILIPPINES
INDIA
Lakshadweep (INDIA)
Minicoy
MALDIVES
Male Atoll
Suvadiva Atoll
Addu Atoll
Andaman Is (INDIA)
Little Andaman
Car Nicobar
Nicobar Islands (INDIA)
Great Nicobar
THAILAND
MALAYSIA
SOUTH CHINA SEA
Palawan
Brunei
MALAYSIA
Borneo
Simeulue
Nias
Sumatra
SINGAPORE
Kep Lingga
Siberut
Kepulauan Mentawai
Belitung
EQUATOR
EQUATOR
Peros Banhos
Chagos Archipelago (BRITISH INDIAN OCEAN TERRITORY)
Diego Garcia
Enggano
Java
Bali
Lombok
Sumbawa
Christmas I. (AUSTRALIA)
Cocos Islands (AUSTRALIA)
Rodrigues (MAURITIUS)
INDIAN OCEAN
AUSTRALIA
Ile Amsterdam
Ile St Paul
(FRANCE)
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Kerguelen Is (FR)
Ile Kerguelen
Shag I
Heard I.
McDonald Is (AUSTRALIA)
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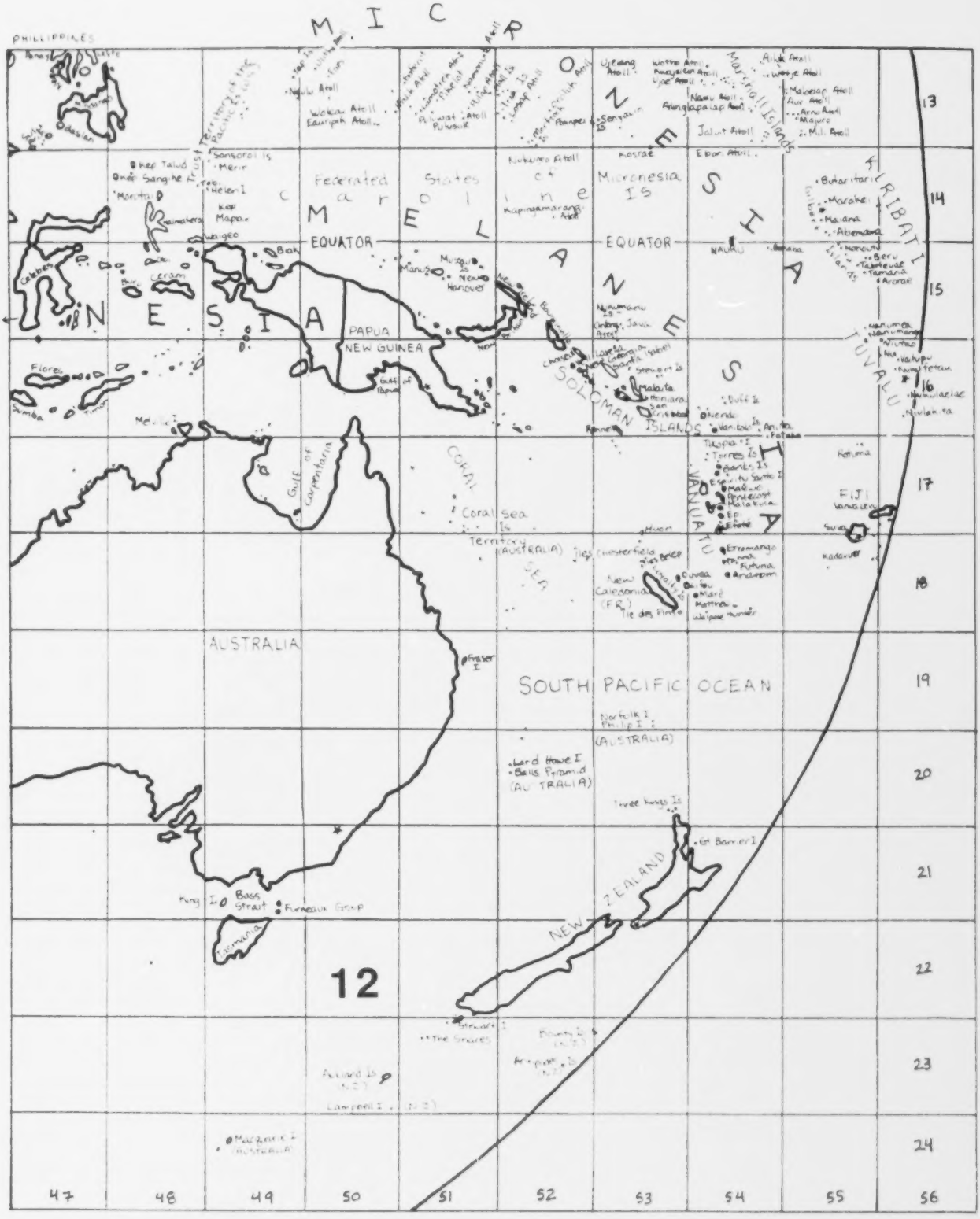
PHILIPPINES
MICRONESIA
Federated States of Micronesia
EQUATOR
NAURU
KIRIBATI
TUVALU
SOLOMON ISLANDS
VANUATU
FIJI
NEW CALEDONIA (FR)
CORAL SEA
Coral Sea Is Territory (AUSTRALIA)
AUSTRALIA
SOUTH PACIFIC OCEAN
NEW ZEALAND
Bass Strait
Furneaux Group
Lord Howe I (AUSTRALIA)
Norfolk I (AUSTRALIA)
Three Kings Is
Gt Barrier I
Macquarie I (AUSTRALIA)
Auckland Is (NZ)
Campbell I (NZ)
The Snares
Antipodes Is (NZ)
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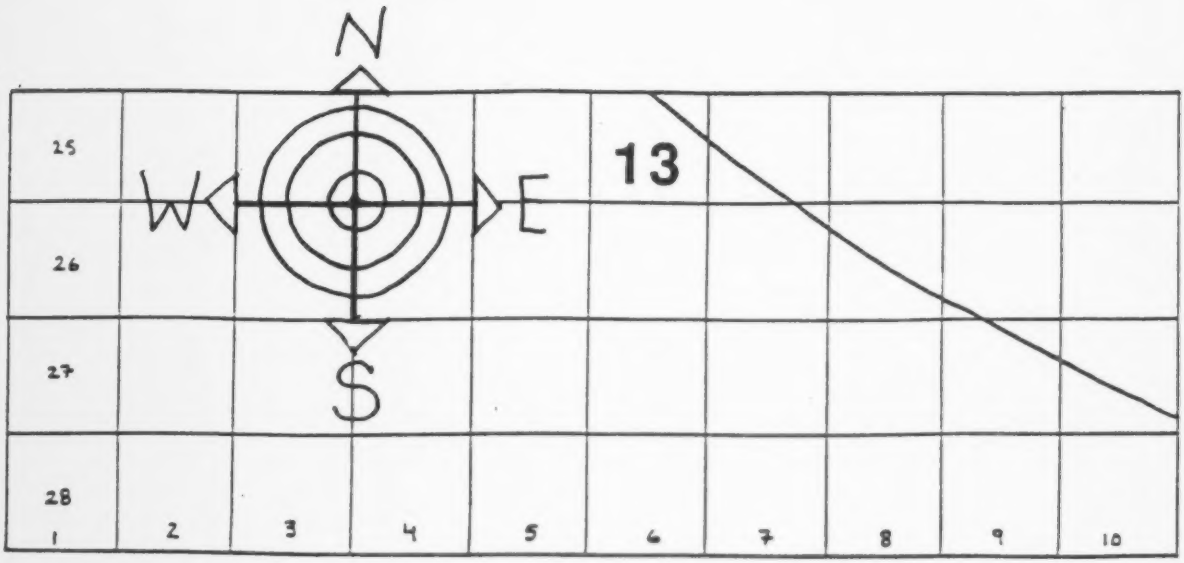
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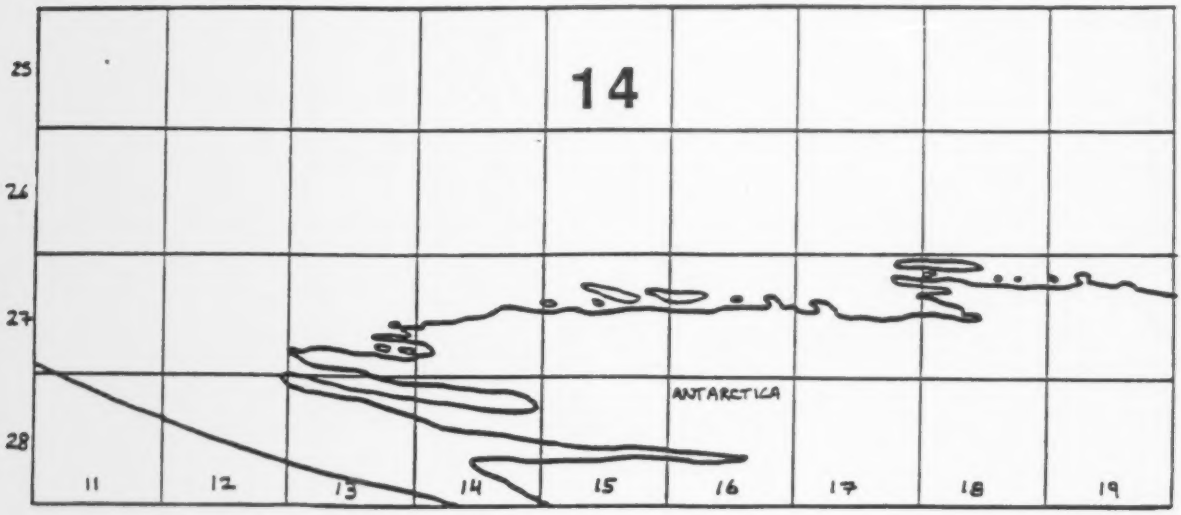
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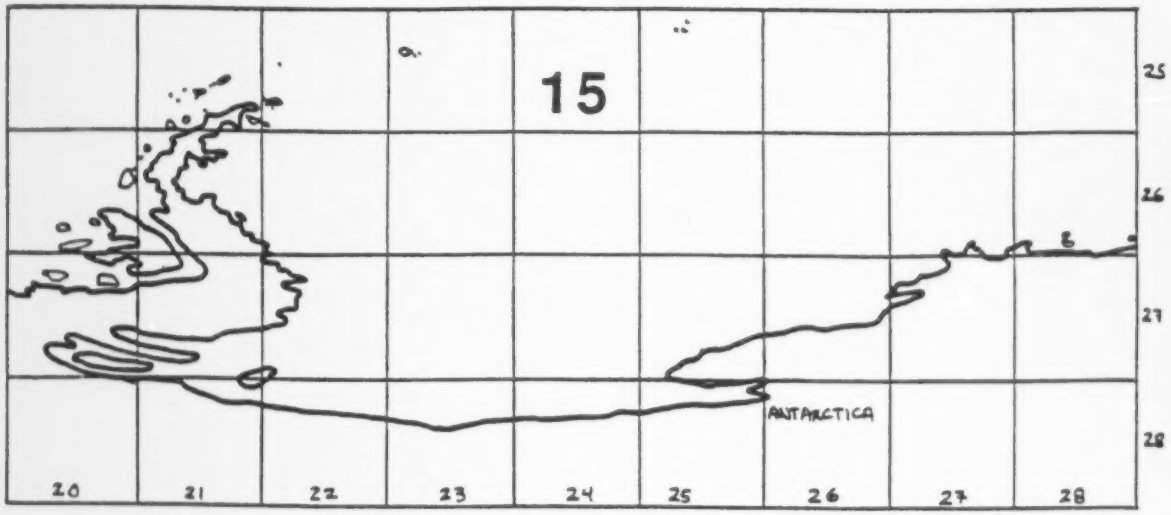
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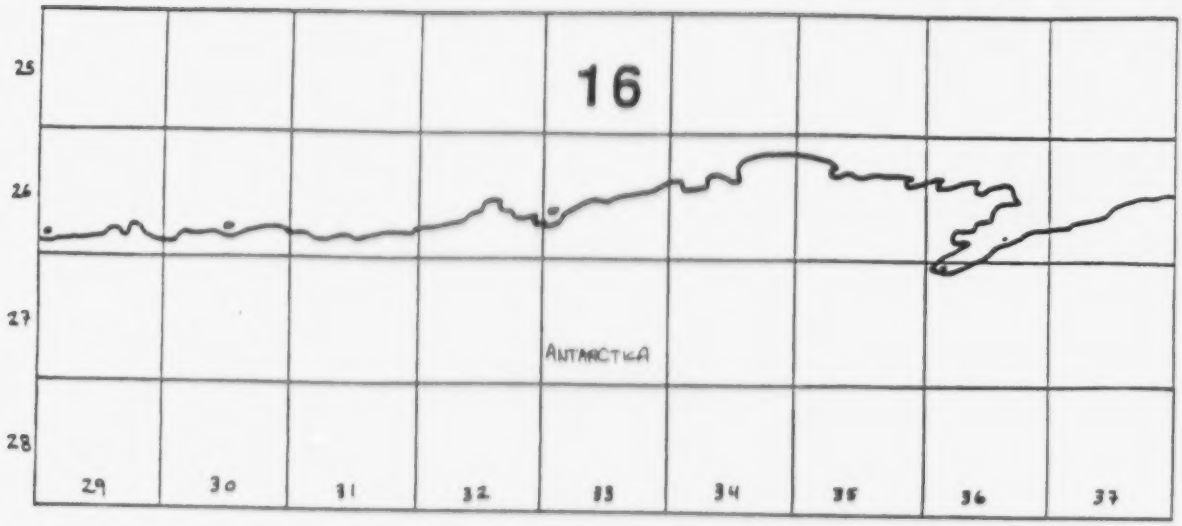
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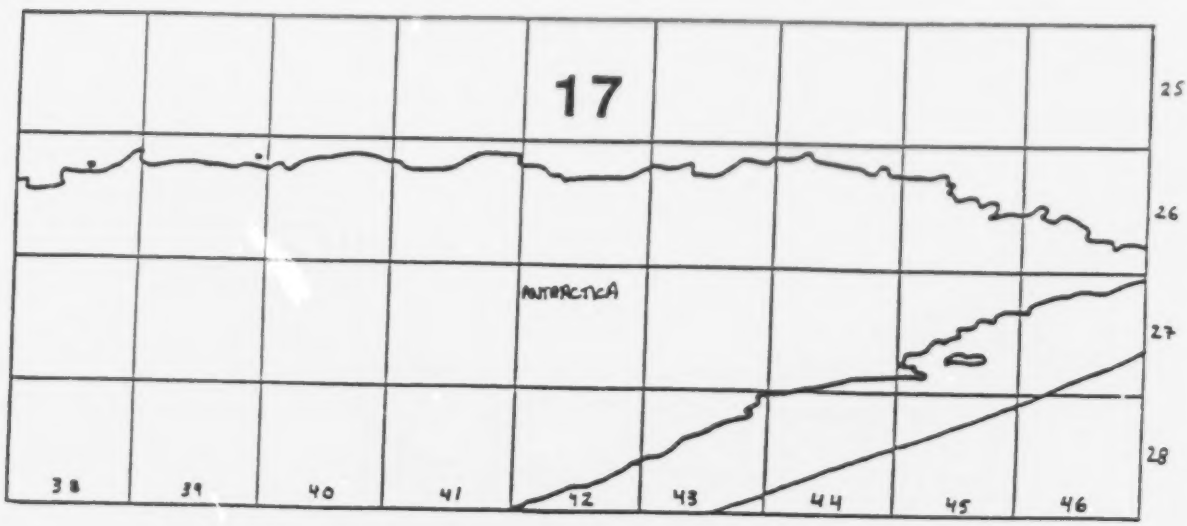
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ANTARCTICA
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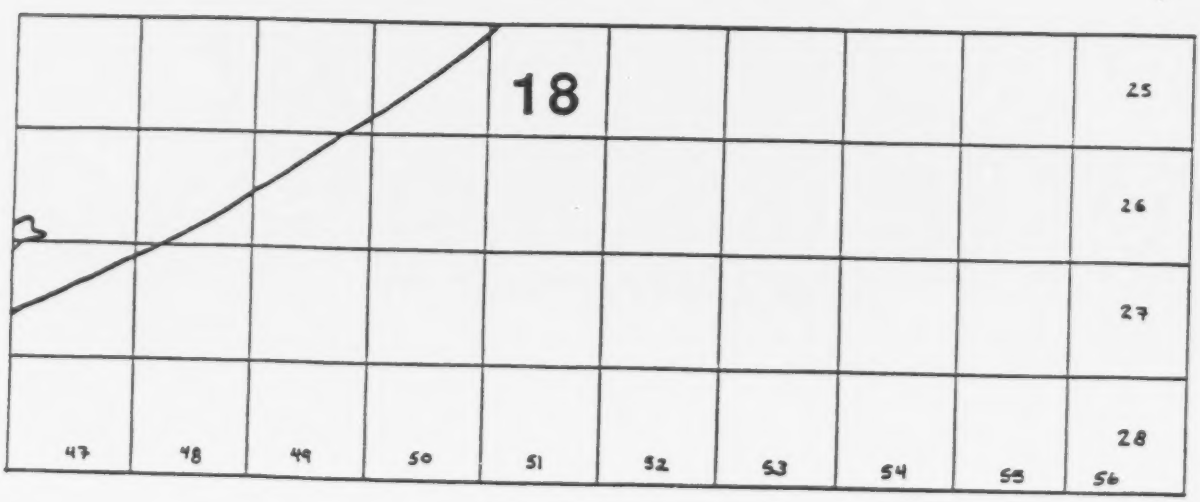
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Color Scheme for Countries and Territories

NORTH AMERICA

Color	Country	Capital
Purple	CANADA	Ottawa
Yellow	MEXICO	Mexico City
Red	UNITED STATES OF AMERICA	Washington, DC

Territories

Orange	Bermuda	(United Kingdom)
Blue	Clipperton	(France)
Yellow	Isla Guadalupe	(Mexico)
Yellow	Islas Revíllagigedo	(Mexico)
Blue	Saint Pierre et Miquelon	(France)
Green	Greenland	(Denmark)

CENTRAL AMERICA

Color	Country	Capital
Blue	BELIZE	Belmopan
Blue	COSTA RICA	San José
Light Green	EL SALVADOR	San Salvador
Orange	GUATEMALA	Guatemala City
Purple	HONDURAS	Tegucigalpa
Green	NICARAGUA	Managua
Red	PANAMA	Panamá

Territories

Blue	Isla del Coco	(Costa Rica)

CARIBBEAN

Color	Country	Capital
Pink	ANTIGUA & BARBUDA	Saint John's
Yellow	BAHAMAS	Nassau
Green	BARBADOS	Bridgetown
Light Green	CUBA	Havana
Yellow	DOMINICA	Roseau
Blue	DOMINICAN REPUBLIC	Santo Domingo
Yellow	GRENADA	Saint George's
Pink	HAITI	Port-au-Prince
Green	JAMAICA	Kingston
Purple	SAINT KITTS & NEVIS	Basseterre
Light Green	SAINT LUCIA	Castries
Orange	SAINT VINCENT & GRENADINES	Kingstown
Purple	TRINIDAD & TOBAGO	Port-of-Spain

Territories

Color	Country	Capital
Light Green	Aruba	(Netherlands)
Light Green	Bonaire	(Netherlands)
Orange	Cayman Islands	(United Kingdom)
Light Green	Curaçao	(Netherlands)
Blue	Guadeloupe	(France)
Blue	Martinique	(France)
Red	Puerto Rico	(United States)

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Territories/CARIBBEAN

Color	Country	Capital
Orange	Turks & Caicos Islands	(United Kingdom)
Orange	Virgin Islands	(United Kingdom)
Red	Virgin Islands	(United States)

SOUTH AMERICA

Color	Country	Capital
Light Green	ARGENTINA	Buenos Aires
Blue	BOLIVIA	La Paz
Orange	BRAZIL	Brasilia
Red	CHILE	Santiago
Yellow	COLOMBIA	Bogotá
Light Green	ECUADOR	Quito
Red	GUYANA	Georgetown
Yellow	PARAGUAY	Asunción
Green	PERU	Lima
Green	SURINAM	Paramaribo
Purple	URUGUAY	Montevideo
Pink	VENEZUELA	Caracas

Territories

Orange	Black Rock	(United Kingdom)
Orange	Clerke Rocks	(United Kingdom)
Red	Easter Island	(Chile)
Orange	Falkland Islands	(United Kingdom)
Orange	Fernando de Noronha	(Brazil)
Blue	French Guiana	(France)
Light Green	Galapagos Islands	(Ecuador)
Red	Isla San Ambrosio	(Chile)
Red	Isla San Felix	(Chile)
Red	Juan Fernández Islands	(Chile)
Orange	Martin Vaz Islands	(Brazil)
Orange	St. Peter & St. Paul Rocks	(Brazil)
Red	Sala-y-Gomez	(Chile)
Orange	South Georgia	(United Kingdom)
Orange	South Sandwich Islands	(United Kingdom)
Orange	Shag Rocks	(United Kingdom)
Orange	Trinidade	(Brazil)

EUROPE

Color	Country	Capital
Yellow	ALBANIA	Tiranë
Red	ANDORRA	Andorra-la-Vieja
Yellow	AUSTRIA	Vienna
Yellow	BELGIUM	Brussels
Yellow	BOSNIA-HERCEGOVINA	Sarajevo
Pink	BULGARIA	Sofia
Light Green	CROATIA	Zagreb
Pink	THE CZECH REPUBLIC	Prague
Green	DENMARK	Copenhagen
Blue	FINLAND	Helsinki
Blue	FRANCE	Paris
Purple	GERMANY	Berlin
Green	GREECE	Athens
Blue	HUNGARY	Budapest

EUROPE (continued)

Color	Country	Capital
Blue	ICELAND	Reykjavik
Pink	IRELAND	Dublin
Red	ITALY	Rome
Orange	LIECHTENSTEIN	Vaduz
Red	LUXEMBOURG	Luxembourg
Yellow	MALTA	Valletta
Yellow	MONACO	Monaco
Light Green	NETHERLANDS	Amsterdam
Light Green	NORWAY	Oslo
Green	POLAND	Warsaw
Purple	PORTUGAL	Lisbon
Light Green	ROMANIA	Bucharest
Light Green	SAN MARINO	San Marino
Orange	SLOVAKIA	Bratislava
Purple	SLOVENIA	Ljubljana
Yellow	SPAIN	Madrid
Red	SWEDEN	Stockholm
Light Green	SWITZERLAND	Bern
Orange	UNITED KINGDOM	London
Green	HOLY SEE	Vatican City
Orange	YUGOSLAVIA	Belgrade

Territories

Purple	Azores	(Portugal)
Green	Faroe Islands	(Denmark)
Orange	Gibralter	(United Kingdom)
Light Green	Jan Mayen	(Norway)
Light Green	Svalbard	(Norway)

EURASIA

Color	Country	Capital
Light Green	ARMENIA	Yerevan
Green	AZERBAIJAN	Baku
Blue	BELARUS	Minsk
Orange	ESTONIA	Tallinn
Purple	GEORGIA	Tbilisi
Orange	KAZAKHSTAN	Almaty
Green	KYRGYZSTAN	Bishkek
Light Green	LATVIA	Riga
Pink	LITHUANIA	Vilnius
Orange	MOLDOVA	Kishinev
Yellow	RUSSIA	Moscow
Red	TAJIKISTAN	Dushanbe
Blue	TURKEY	Ankara
Light Green	TURKMENISTAN	Ashgabat
Red	UKRAINE	Kiev
Blue	UZBEKISTAN	Tashkent

AFRICA

Color	Country	Capital
Green	ALGERIA	Algiers
Green	ANGOLA	Luanda
Orange	BENIN	Porto-Novo
Yellow	BOTSWANA	Gaborone

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AFRICA (continued)

Color	Country	Capital
Green	BURKINA FASO	Ouagadougou
Yellow	BURUNDI	Bujumbura
Pink	CAMEROON	Yaoundé
Green	CAPE VERDE	Praia
Yellow	CENTRAL AFRICAN REPUBLIC	Bangui
Light Green	CHAD	N'Djamena
Green	COMOROS	Moroni
Red	CONGO	Brazzaville
Pink	DJIBOUTI	Djibouti
Light Green	EQUATORIAL GUINEA	Malabo
Yellow	EGYPT	Cairo
Blue	ERITREA	Asmara
Green	ETHIOPIA	Addis Ababa
Orange	GABON	Libreville
Orange	GAMBIA	Banjul
Light Green	GHANA	Accra
Red	GUINEA	Conakry
Pink	GUINEA-BISSAU	Bissau
Pink	IVORY COAST	Abidjan
Purple	KENYA	Nairobi
Blue	LESOTHO	Maseru
Light Green	LIBERIA	Monrovia
Purple	LIBYA	Tripoli
Yellow	MADAGASCAR	Antananarivo
Yellow	MALAWI	Lilongwe
Yellow	MALI	Bamako
Blue	MAURITANIA	Nouakchott
Light Green	MAURITIUS	Port Louis
Red	MOROCCO	Rabat
Light Green	MOZAMBIQUE	Maputo
Pink	NAMIBIA	Windhoek
Red	NIGER	Niamey
Blue	NIGERIA	Lagos
Light Green	RWANDA	Kigali
Green	SAO TOME & PRINCIPE	São Tomé
Light Green	SENEGAL	Dakar
Orange	SEYCHELLES	Victoria
Orange	SIERRA LEONE	Freetown
Red	SOMALIA	Mogadishu
Red	SOUTH AFRICA	Pretoria, Cape Town
Orange	SUDAN	Khartoum
Green	SWAZILAND	Mbabane
Red	TANZANIA	Dar es Salaám
Yellow	TOGO	Lomé
Light Green	TUNISIA	Tunis
Pink	UGANDA	Kampala
Blue	ZAIRE	Kinshasa
Orange	ZAMBIA	Lusaka
Purple	ZIMBABWE	Harare

Territories

Light Green	Apalega Islands	(Mauritius)
Light Green	Annobón	(Equatorial Guinea)
Orange	Ascension	(United Kingdom)

Territories/AFRICA (continued)

Color	Country	Capital
Light Green	Bouvet	(Norway)
Green	Cabinda	(Angola)
Yellow	Canary Islands	(Spain)
Light Green	Cargados Carajos Shoals	(Mauritius)
Yellow	Ceuta	(Spain)
Blue	Crozet Islands	(France)
Purple	Heard Islands	(Australia)
Blue	Ile Amsterdam	(France)
Blue	Ile St. Paul	(France)
Blue	Kerguelen Islands	(France)
Purple	Madeira	(Portugal)
Blue	Mayotte	(France)
Purple	McDonald Island	(Australia)
Yellow	Melilla	(Spain)
Red	Prince Edward Islands	(South Africa)
Light Green	Rodrigues	(Mauritius)
Orange	St. Helena	(United Kingdom)
Orange	Tristan Da Cunha Group	(United Kingdom)
Blue	Tromelin	(France)
Pink	Western Sahara	(Morocco)

MIDDLE EAST

Color	Country	Capital
Purple	AFGHANISTAN	Kabul
Light Green	BAHRAIN	Manama
Pink	CYPRUS	Nicosia
Red	IRAN	Tehran
Pink	IRAQ	Baghdad
Red	ISRAEL	Jerusalem
Green	JORDAN	Amman
Yellow	KUWAIT	Kuwait
Light Green	LEBANON	Beirut
Purple	OMAN	Muscat
Orange	PAKISTAN	Islamabad
Purple	TERRITORY UNDER PARTIAL PALESTINIAN CONTROL	
Orange	QATAR	Doha
Blue	SAUDI ARABIA	Riyadh
Orange	SYRIA	Damascus
Green	UNITED ARAB EMIRATES	Abu Dhabi
Yellow	YEMEN	Sanaa

Territories

Purple	Al Khasab	(Oman)
Yellow	Socotra	(Yemen)

ASIA

Color	Country	Capital
Green	BANGLADESH	Dhaka
Purple	BHUTAN	Thimphu
Yellow	BRUNEI	Bandar Seri Begawan
Yellow	MYANMAR	Yangon
Pink	CHINA	Beijing
Light Green	INDIA	New Delhi
Orange	INDONESIA	Jakarta

Green	JAPAN	Tokyo
Light Green	KAMPUCHEA	Phnom Penh
Purple	KOREA, NORTH	P'yongyang
Orange	KOREA, SOUTH	Seoul
Purple	LAOS	Vientiane
Blue	MALAYSIA	Kuala Lumpur
Green	MALDIVES	Male
Blue	MONGOLIA	Ulaanbaatar
Red	NEPAL	Kathmandu
Yellow	PHILIPPINES	Manila
Light Green	SINGAPORE	Singapore
Red	SRI LANKA	Colombo
Green	THAILAND	Bangkok
Red	VIETNAM	Hanoi

Territories

Light Green	Andaman Islands	(India)
Orange	Chagos Archipelago	(British Indian Ocean Territory)
Green	Daito Islands	(Japan)
Orange	Hong Kong	(United Kingdom)
Light Green	Lakshadweep	(India)
Purple	Macao	(Portugal)
Green	Nampo Shoto	(Japan)
Light Green	Nicobar Islands	(India)
Green	Parece Vela	(Japan)
Pink	Pratas	(China)
Pink	Taiwan	(China)

SOUTH PACIFIC

Color	Country	Capital
Purple	AUSTRALIA	Canberra
Orange	FEDERATED STATES OF MICRONESIA	
Light Green	FIJI	Suva
Green	KIRIBATI	Tarawa
Green	MARSHALL ISLANDS	Majuro
Orange	NAURU	Yaren
Pink	NEW ZEALAND	Wellington
Light Green	PAPUA NEW GUINEA	Port Moresby
Orange	TONGA	Nuku'alofa
Purple	TUVALU	Funafuti
Red	VANUATU	Port-Vila
Purple	WESTERN SAMOA	Apia

Territories

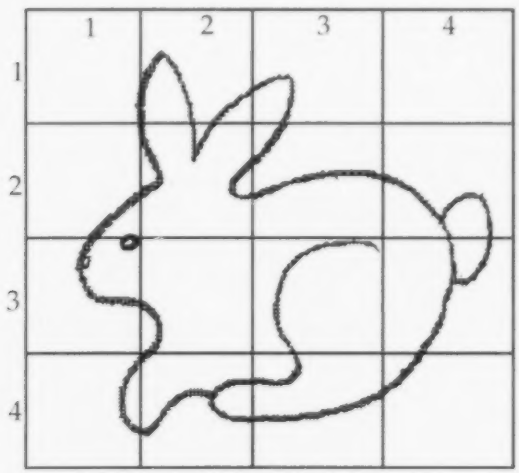
Red	American Samoa	(United States)
Pink	Antipodes	(New Zealand)
Pink	Auckland Islands	(New Zealand)
Red	Baker Island	(United States)
Purple	Ball's Pyramid	(Australia)
Pink	Bounty Islands	(New Zealand)
Pink	Campbell Island	(New Zealand)
Pink	Chatham Islands	(New Zealand)
Purple	Christmas Island	(Australia)
Purple	Cocos Islands	(Australia)
Pink	Cook Island	(New Zealand)
Purple	Coral Sea Islands Territory	(Australia)

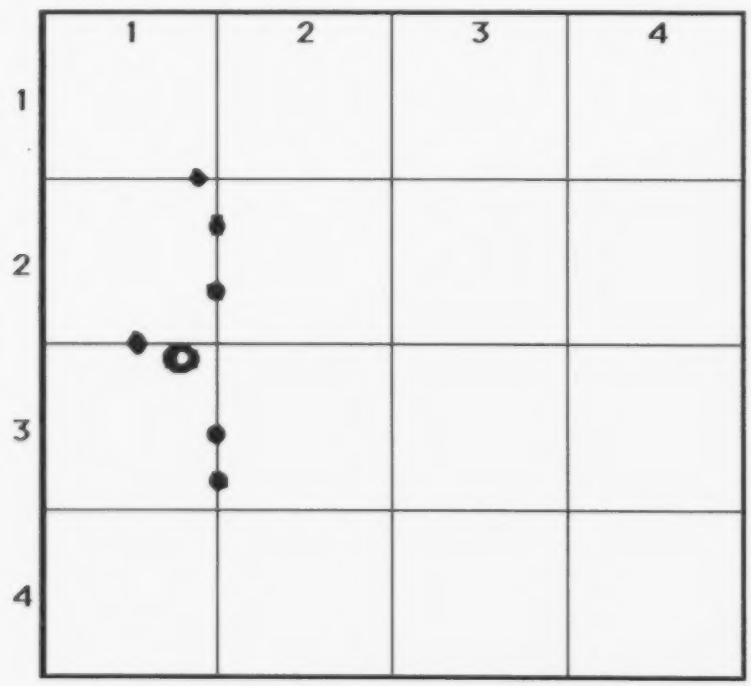
Territories/SOUTH PACIFIC (continued)

Color	Country	Capital
Orange	Ducie Island	(United Kingdom)
Blue	French Polynesia	(France)
Red	Guam	(United States)
Orange	Henderson Island	(United Kingdom)
Red	Howland Island	(United States)
Blue	Wallis	(France)
Red	Jarvis Island	(United States)
Red	Johnston Atoll	(United States)
Pink	Kermadec Islands	(New Zealand)
Light Green	Lau Group	(Fiji)
Purple	Lord Howe Island	(Australia)
Purple	Macquarie Island	(Australia)
Green	Minami Tori Shima	(Japan)
Blue	New Caledonia	(France)
Red	Northern Mariana Islands	(United States)
Purple	Norfolk Island	(Australia)
Pink	Niue	(New Zealand)
Orange	Oeno Island	(United Kingdom)
Red	Palau (Trust Terr. of Pac. Is.)	(United States)
Red	Palmyra Atoll	(United States)
Purple	Philip Island	(Australia)
Orange	Pitcairn Islands	(United Kingdom)
Pink	Tokelau Islands (Union Group)	(New Zealand)
Red	Wake Island	(United States)

Practice Exercise #1: Enlarging Drawings by Grid

Directions: Make a larger copy of the rabbit in Grid #1 by drawing it in Grid #2. Hint: In order to draw a bigger rabbit in the grid on the right, you need to look at where the lines of the rabbit's body cross the grid squares in the smaller drawing. You can make dots on the large grid where these lines should cross the squares. Then connect the dots and look how your rabbit grew!



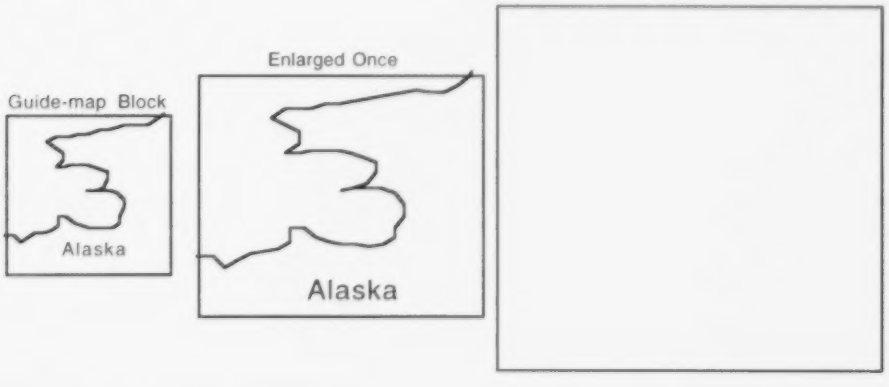


Practice Exercise #2: Drawing Maps by Grid

Directions: Read the suggestions below; then practice your map drawing skills using the grid.

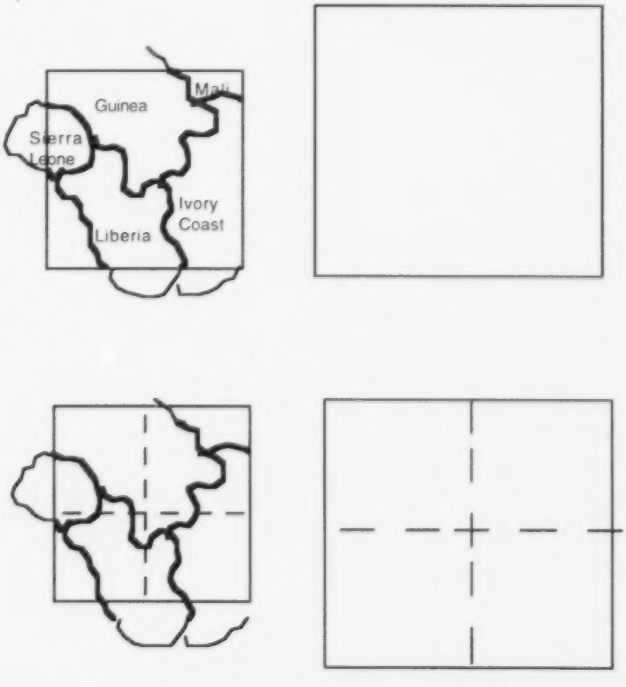
Enlarging Your Drawing

First, look at the guide-map block. Do you see how the form in the "enlarged once" block is larger but still has the same shape and proportions? When you draw, make sure the country border or coast lines cross the large grid block in proportionately the same place as in the guide map block. Now, you try it. In less than a minute, you've drawn over a thousand miles of North Alaskan coastline.



Sub-dividing Difficult Blocks

Drawing difficult map blocks will be four times as easy if you divide the guide map block into four smaller blocks. Be sure to sub-divide the same block on the large map grid as well.



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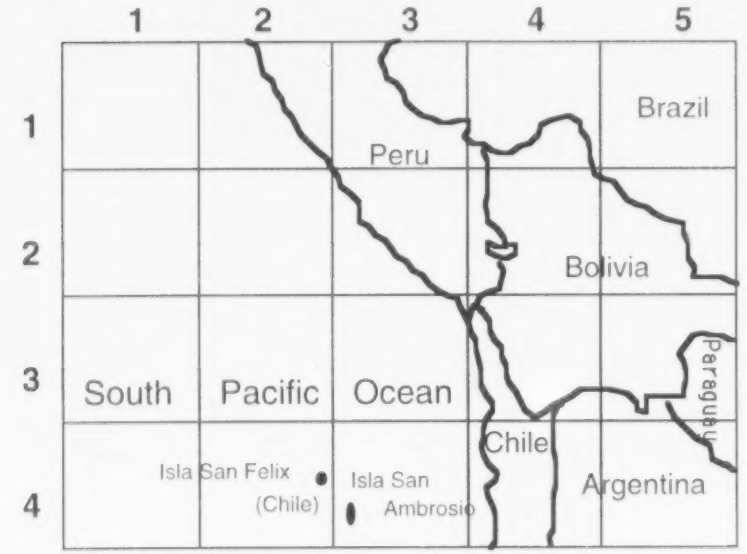
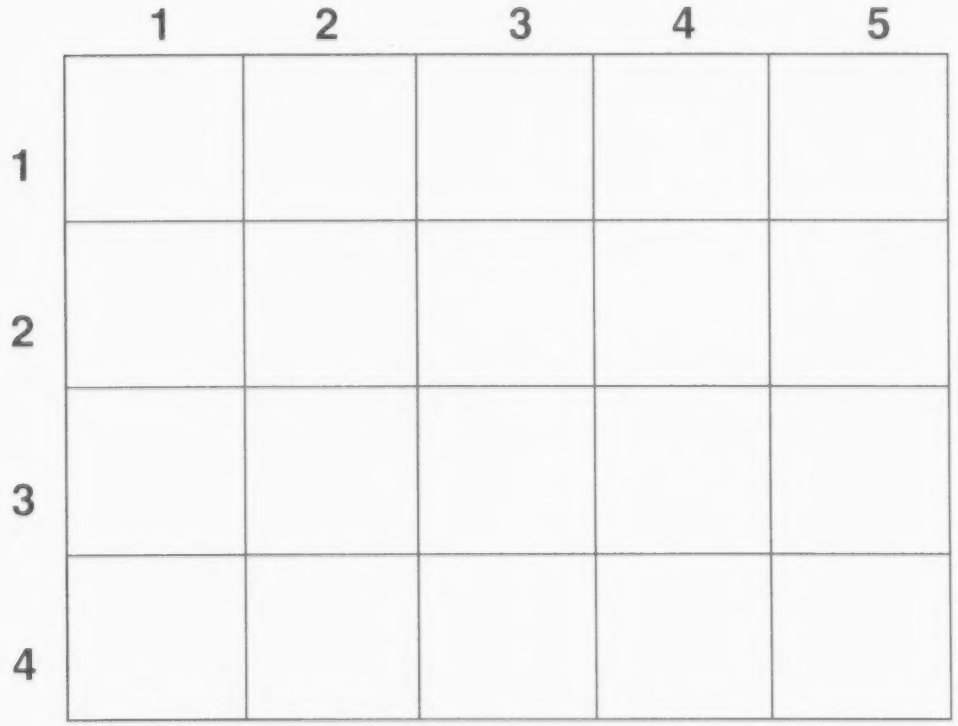
Putting It All Together

As you draw this section of South America, notice where the borders cross the grid blocks. Remember to draw one block at a time.





Appendix

How to Draw Your Grid on Walls

These instructions are for mapmakers who are drawing their maps on unsquared walls or irregular pieces of hanging canvas. Don't be put off by the number of steps. They simply tell you how to make a grid box with perpendicular sides using a simple plumb line.

Materials:
yardstick/meter stick(s)
long straightedge
pencils
simple plumb line

To make:
Attach a long string to a small flat weight, such as a washer or rock. The string should be longer than the height of your map. The weight should be about the size and shape of a half-dollar. It should also be smooth and flat on one side.

Steps:
1. Roughly center your map on your background surface. You can find the center point of your map by drawing a big X corner-to-corner across an area of background that is roughly the same size as your map. The center of the X is the center point of your map's grid.

2. Draw the left edge of your grid box:

    a. From your center point, measure left 1/2 the length of your map. Let this be Point L.

    b. Hang your plumb line through Point L. Tape the top of the string to the wall so that the plumb line crosses directly over Point L. Your plumb line should lie directly against the wall or cloth. When it is still, make marks on the background surface every foot (half-meter) or so down along the string.

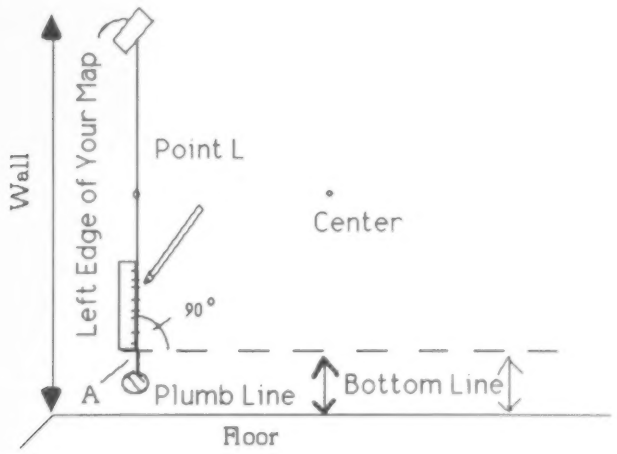
    c. Connect these marks with a pencil and straightedge to make the left edge of your grid.

3. Draw the bottom of your grid box:

    a. Decide where you want the bottom of your map to be. Measure up from the floor this distance and make a series of marks the length of your map.

    b. Connect these marks with a pencil and straightedge to make your bottom line.

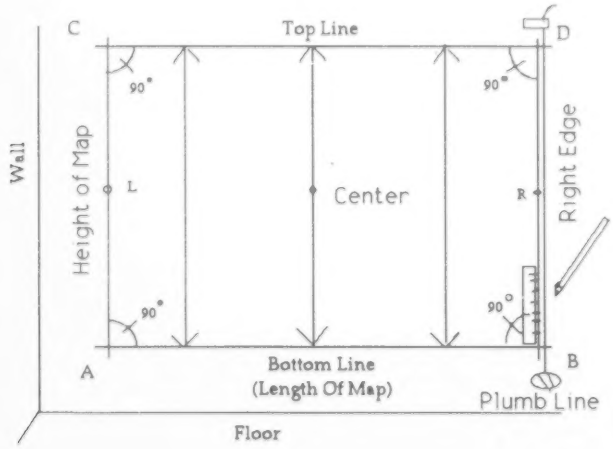
Figure 10: Grid Box Left Edge and Bottom Line



4. Draw the right edge of your grid box. Repeat steps 2a-c on the right side of your map. (Let R be the right edge point and B be the point of intersection between the bottom line and the right edge line.)

5. Draw the top of your grid box:
   a. Mark the height of your map on both the left and right sides of your grid box. Do this by measuring up from Points A and B the same distance. Let the top left point be Point C and the top right point be Point D.
   b. Draw a line connecting these two top marks (Points C and D). This top line should be parallel with the bottom line. If you don't have a very long straightedge, first make top points.

Figure 11: Grid Box Right Edge and Top Line



6. Now that you have your grid box, go to p. 13 and continue the process from there.

How to Draw Your Grid on Floors, Playgrounds and Other Flat Surfaces

These instructions are for mapmakers who are drawing their maps on an unsquared horizontal surface like a part of a floor or a playground. You can also follow these instructions if you are working flat with an irregular piece of canvas.

Materials:
pencil or chalk
string
measuring tape or stick
long straightedge
carpenter's square (two rulers joined in an L shape)

Steps:
1. Use the measuring tape and chalk to draw the bottom line of the grid.

2. Draw the left line of the grid. The trick here is to make sure that the left line is perpendicular to the right line. To do this, take advantage of the Pythagorean Theorem: $a^2 + b^2 = c^2$. For example, $3^2 + 4^2 = 5^2$ because $9 + 16 = 25$.

   a. First, cut a string 16 feet long and lay it along the bottom line.

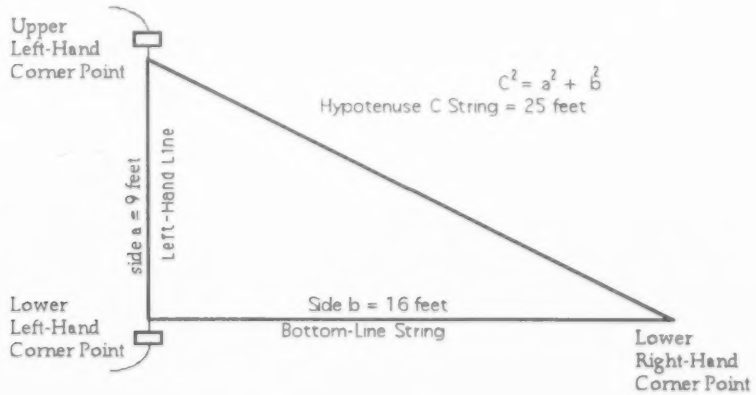
   b. Cut another string 9 feet long and lay it along the left side of the bottom line.

   c. Cut the third string 25 feet long. This string is the hypotenuse, so lay it in position. While keeping the bottom line string along the bottom line, move just the left line string until all the points match up. This produces a triangle where the bottom line is perpendicular to the left line. Draw the left line along the string.

   Note: When laying the string for steps 2a-c, do not pull the string so tight that it stretches.

3. To make the rest of the grid, measure up from the bottom line and over from the left line.

Figure 12



How to Make a Tissue Paper World Map

Colored tissue paper makes beautiful, textured maps. Glued to lightweight paper, these maps have an illuminated quality when taped to windows. They are also involve less clean-up than painted maps.

Materials:
copies of map section sheets, p. 42-55
"butcher block" paper or pre-gridded flip-chart paper (available through business supply stores)
tissue paper in a variety of colors
glue sticks
black markers

Steps:
To make a tissue paper map, draw your grid on lightweight sheets of paper taped together. Some mapmakers have simplified the process by purchasing large sheets of pre-gridded paper. Hand draw your map information block-by-block as usual. (Note: If necessary, you can cut your paper map into workable sections during the project and reassemble it at the end.)

When you are ready to add color:

1. Select tissue paper appropriate to the countries you are coloring. Tear the paper into strips or patches.

2. Cover your targeted area with glue.

3. Affix the tissue paper strips so that they cover the targeted area in a collage-like way.

4. Don't worry about rough borders between colors. Once the paper is dry, outline the borders with a wide black marker, which will cover any gaps.

5. Label your map; see p. 20.

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